

JANUARY

1918

# THE AGRICULTURAL GAZETTE OF CANADA

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INDEXING AND FILING  
PUBLICATIONS

RURAL SCHOOL FAIRS

A NATIONAL FLOWER FOR  
CANADA

THE WHEAT SITUATION



DEPARTMENT OF AGRICULTURE  
OTTAWA, CANADA.

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**TO AGRICULTURAL OFFICIALS:**

PLEASE FORWARD PROMPTLY TO THE AGRICULTURAL GAZETTE ANNOUNCEMENTS, APPOINTMENTS, RESOLUTIONS AND OFFICIAL REPORTS.

MANUSCRIPT FOR THE FORTHCOMING NUMBER SHOULD REACH THE EDITOR NOT LATER THAN THE 5th OF THE PRECEDING MONTH.

Vol. 5, No. 1



January, 1918

DOMINION OF CANADA  
DEPARTMENT OF AGRICULTURE

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# The Agricultural Gazette of Canada

EDITOR: J. B. SPENCER, B.S.A.

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Issued by direction of  
THE HON. THOS. ALEXANDER CRERAR  
Minister of Agriculture

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OTTAWA  
GOVERNMENT PRINTING BUREAU

1918





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# The Agricultural Gazette

## OF CANADA

VOL. V

JANUARY, 1918

No. 1

The AGRICULTURAL GAZETTE of Canada is published monthly, in English and in French, by the Dominion Department of Agriculture. It is not intended for general circulation. A limited number of copies, however, are available to subscribers at \$1.00 per annum, or 10 cents per copy.

Subscriptions should be forwarded to the Editor, Agricultural Gazette, Ottawa.

## THE SCHOOL FAIR

BY W. J. BLACK, B.S.A., COMMISSIONER, AGRICULTURAL INSTRUCTION ACT

THE School Fair, although less than five years old in Canada, has shown a record of advancement seldom equalled by any new movement in education. During the year just closed eight hundred and seventy two fairs were held in the nine provinces of the Dominion. The vegetable products exhibited were from eighty-five thousand gardens planted and managed by boys and girls, mostly of school age, and one hundred and twenty thousand adults showed their interest in the efforts of the young people by attending the exhibitions.

The introduction of agriculture as a subject of study in elementary and high schools in Canada, marked a forward step in the evolution toward more practical and effective training for citizenship; the school fair represents an important stage in the progress of that evolution. The value of a movement so wide-spread, and so direct in its influence upon the training for service of those enjoying its benefits, no one can estimate. Perhaps no class of work carried on, as this is, under the provisions of THE AGRICULTURAL INSTRUCTION ACT will bear a richer harvest. If it be true, as generally agreed, that all human effort whether economic, social, political or educational is intended primarily and ultimately to aid in the preservation of life, it follows that teaching in any subject in order to be most directly effective must concern itself with conditions of living.

The school fair as the logical accompaniment of the school or home garden is educational in terms of life. It provides a fine demonstration showing what youthful intelligence and energy can accomplish when in combination with the great forces of nature. Teachers and departmental officials who are seeking to make more effective such agencies are deserving of commendation and the fullest possible measure of support. There is nothing truer than that Canada's future, in the next generation, depends largely upon the ideals and aspirations developing now in the hearts and minds of the boys and girls. The school fair if wisely directed and utilized within its proper sphere is sure to have a great influence for good in that development.

NOTE.—An account of how schools fairs were conducted in each of the provinces of Canada last year appears in Part III of this number.—EDITOR.

# PART I

## Dominion Department of Agriculture

INFORMATION SUPPLIED BY OFFICIALS OF THE VARIOUS  
BRANCHES REPRESENTED

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### INDEXING AND FILING PUBLICATIONS

#### THE EXPERIMENTAL FARMS

##### THE DIVISION OF CHEMISTRY

BY FRANK T. SHUTT, M.A., D.SC., DOMINION CHEMIST

IN devising our system of filing none of the standard methods were used; our arrangements were made to suit our facilities and the publications in which this Division is particularly interested.

The bulletins are divided into four groups:—

1. General.
2. Those of the Bureau of Chemistry, Department of Agriculture, U.S.A.
3. Publications of the Bureaux of Plant Industry, Animal Industry and Soils.
4. Bulletins of the Inland Revenue Department.

The first two groups are filed in bulletin drawers which are divided to form two divisions. These divisions are all marked with a number e.g., 1, 2, 3, 4, 5, 6. These sub-divisions are again separated into A, B, C, D, each of these groups containing 50

bulletins. Thus a bulletin marked 2B10 would be the 10th publication in section B of the second half of the first drawer.

These bulletins are subject indexed, and, in each case where many publications are received from the same source, as the different State Agricultural Colleges, they are also numerically indexed.

In the case of the Bureau of Chemistry, we have the Library of Congress cards for this Bureau's publications. Where we have the bulletin corresponding to the card the place in the file is indicated on the corner such as 6A12.

The remaining two groups are filed in cases, fifty publications going to one case with subject and numerical indices.

---

#### THE DIVISION OF FORAGE PLANTS

BY M. O. MALTE, DOMINION AGROSTOLOGIST

AGRICULTURAL bulletins are being filed as they arrive, regardless of content, and each bulletin is given a number. A subject index is kept of the bulletins, and in addition an author's index is kept. Through the latter index, it

is possible to keep track of the work published by specialists, and thus to follow, rather closely, the advancement of special investigations, and especially of those of a strictly technical nature requiring years to finish.



## THE POULTRY DIVISION

BY F. C. ELFORD, DOMINION POULTRY HUSBANDMAN

**I**N the Poultry Division we have two systems of filing publications one with reference to bulletins and the other to catalogues. Bulletins are numbered consecutively as they arrive and are filed under three heads, author, subject and address. The catalogues are filed under subject only.

In our indexing, therefore, we use three cards for bulletins and one for catalogues. As a sample I shall take as a bulletin, Bulletin No. 87 of the Experimental Farms, "The Principles of Poultry House Construction." This bulletin bears the file number 500. For this we have three index cards, the first for the author, which reads as follows:—

F. C. Elford

The Principles of Poultry House  
Construction with General and  
Detailed Plans..... 500

The second, for the subject, reads as follows:—

The Principles of Poultry House  
Construction with General and  
Detailed Plans..... 500

and the third card, for the address:—

Ottawa, Department of Agriculture

The Principles of Poultry House  
Construction with General and  
Detailed Plans..... 500

Our catalogues are also numbered consecutively by subjects. For example, a catalogue on "Incubators and Brooders" would have a card bearing the title "Incubators and Brooders," with the name of the manufacturer, the address and the catalogue number.

The index cards are kept in drawers while the publications are filed in cabinets, and, as already stated, numbered consecutively.

## THE DAIRY AND COLD STORAGE BRANCH

BY J. A. RUDDICK, COMMISSIONER

**T**HE system of filing and indexing publications in this Branch is a very simple one. For a number of years we have followed the practice of card indexing bulletins and pamphlets as they come in, numbering them consecutively as they arrive and placing them in that order in a vertical filing cabinet of specified dimensions. The index cards are filed under subjects and titles. In order to look up a publication, we go direct to the sub-division,

then to the title of the bulletin desired, which shows the office number of the publication wanted. This system works out fairly satisfactory. We are beginning to follow the plan of binding in volumes bulletins from all sources. These are classified according to the different divisions of the subject.

Books and reports are card indexed and numbered. A card index is made of articles in the dairy papers.

## THE ENTOMOLOGICAL BRANCH

BY C. GORDON HEWITT, D.SC., F.R.S.C., DOMINION ENTOMOLOGIST

**T**HE Entomological Branch maintains a library of books and publications devoted either entirely or partially to entomology

and to some extent to economic zoology. The general and specific treatises, are arranged and grouped on the shelves of the library accord-

ing to subjects, for example; Lepidoptera, Diptera, Medical Entomology, etc. The periodicals, including entomological, Zoological, agricultural and general scientific journals and reports are arranged according to countries; this method is found to be very convenient. Bulletins of Agricultural Experiment Stations and similar publications are filed in cloth-covered pamphlet cases (open at the back) under the names of the states or countries by which they are issued. A large part of these are indexed on a card catalogue under subjects, and we have the entomological portion of the index to experiment station literature published by the United States Department of Agriculture. In the case of publications of Agricultural Experiment Stations only those dealing with insect pests, insecticides, spraying and kindred subjects are filed. When we receive bulletins on non-entomological subjects these are transferred to the Branch of the Department to whom they will be of most

interest and value. The books are indexed under subject on cards furnished by the Commissioner of the International Institute of Agriculture to whom duplicates are sent. Miscellaneous scientific pamphlets and memoirs are filed in pamphlet cases, and are placed with the books treating of the subjects to which the pamphlets relate; for example, the cases containing the pamphlets on Lepidoptera or Medical Entomology are placed with the books relating to those subjects. When it is possible, pamphlets on the same subject are grouped either under the name of a single author or in another convenient manner, and are bound in one volume for convenience of handling and to preserve them; for example: Memoirs on Orthoptera by Scudder; Miscellaneous Entomological Papers of Leconte.

As the library forms a very essential part of the equipment of the Entomological Branch much time and thought have been devoted to its creation and upkeep.

## THE FRUIT BRANCH

BY H. H. SINCLAIR, LIBRARIAN

THE Card Index System is the style of filing and indexing publications adopted by the Fruit Branch of the Department of Agriculture.

Bulletins and pamphlets are numbered consecutively, irrespective of subject or serial number, and arranged in the filing cabinet in their numerical order.

In a separate tray, under subject, alphabetically arranged, are the index cards.

The subject matter of each bulletin and the number notated on the cover are placed on a card bearing the subject, title and the name of the state, province or county where published, together with the date of issue, and also the number of the

serial issued by that state or county.

These cards representing the various states, counties, etc., are also arranged alphabetically.

Subjects are divided and redivided as occasion arises. For instance, take the subject "Apples." There will be a general leading card as "Apples," following alphabetically subheads of, say, "Disease," "Insects," "Orchards" etc., and under these, alphabetically placed also, are the cards with the name and bulletin No. from the various states, etc., on that subject.

As regards annual reports, bound books on special subjects, volumes that will run in as series by the year, a sectional book case is used.

They are labelled with the numerals designating that particular book,



and, to have them uniform, a system has been adopted whereby the numbers 1 to 800 have been reserved for all such volumes.

Bulletins in leaflet and other forms run in consecutive series from 801 *ad infinitum*.

### THE LIVE STOCK BRANCH

BY H. S. ARKELL, M.A., B.S.A., LIVE STOCK COMMISSIONER

**A**FTER considerable wading through the slough, a scheme for filing information was decided upon. The following is a brief description of the method used in the office. Subject cards are kept in alphabetical order and upon these cards is written the name of the bulletin, together with a reference number. Newspaper cuttings are kept on file, and they are included in the same card drawer as the bulletins, so that all printed information on any given subject can be discovered by simply looking up the subject card. The important subjects have a special card drawer in which sub-divisions of subjects is made as required. Cards of different colour are used to indicate the sub-division. For example, a special drawer is used for sheep, in it a red card denotes "Feeding," and the next red card is "Feeds"; sub-divisions between these two are signified by yellow cards as "Experimental,"

"Ewes," "Fattening," "Forests," "Lambs," "Rams," and "Range." Subject cards are 3" x 5". Bulletins are kept in numbered folders in drawers 8" x 12". Newspaper clippings are also placed in numbered folders in drawers 10" x 14". To save space, these bulletins are placed in one folder, whilst five or six, depending upon size, clippings occupy another folder. The bulletin cards are placed before the clipping cards in the sub-division. This is a sample bulletin card:—

Sheep  
Feeding  
Lambs  
Sheep Feeding Experiments.  
Report Expt. Sta. Lethbridge, Alta.  
Clipping No. 95 A

This is a newspaper clipping card:

Sheep  
Feeding  
Lambs  
Raising Lambs in the Corn Belt.  
Clipping No. 483 A

### THE INTERNATIONAL INSTITUTE BRANCH

BY MISS A. L. SHAW, B.A., LIBRARIAN

**T**HE publications in the library of the Commissioner of the International Agricultural Institute, West Block, Ottawa, are classified by the Decimal System, using for agriculture the expansion of the Institut International de Bibliographie translated into English and used by the Board of Agriculture and Fisheries, London, England. This is the classification adopted by the Library of the International Agricultural Institute, Rome, Italy,

and applied in the Bulletin Bibliographique Hebdomadaire, a weekly record of their accessions.

By this system all books and pamphlets on the same subject are placed together on the shelves. For example, we have sections for bibliography, statistics, agricultural credit, co-operation, laws, chemistry, botany, series of agricultural bulletins, reports of agricultural departments, proceedings of agricultural societies, soils, live stock, etc. Books and

pamphlets are placed beside each other on shelves, keeping the latter in pamphlet boxes and individual binders.

#### A DEPOSITORY CATALOGUE

We have a depository catalogue for agriculture received currently from the Library of Congress which includes secondary entries. This gives us a complete list of all the U.S. Federal documents on agriculture, all books on agriculture having American copyright, all other modern agricultural publications in English and foreign languages, purchased or received, by the Library of Congress and the Library of the U. S. Dept. of Agriculture, constituting altoget-

her a practically complete bibliography of agriculture for the 20th Century. The Experiment Station card catalogue covers the publications of the Agricultural Experiment Stations. All that is necessary in dealing with the publications of the U.S. Dept. of Agriculture and those of the Experimental Stations is to file them by series and the corresponding catalogue cards when received. The only series of Canadian agricultural bulletins for which cards may be obtained from the Library of Congress are the bulletins of the Live Stock Branch, Ottawa, and those of the British Columbia Dept. of Agriculture. The following will illustrate both the cards and the system adopted:—

**Canada. *Dept. of Agriculture.***

... Grain screenings, by John R. Dymond... with Results of feeding experiments, by E. S. Archibald ... and F. C. Elford... Ottawa, 1915.

44 p. 45cm.

At head of title: Dominion of Canada. Department of agriculture.

1. [Grain screenings]. I. Archibald, E. S. II. Dymond  
John R. III. Elford, F. C.

Agr 15-1355

Library, U.S. Dept. of

Agriculture 59C167

**Spencer, James Burns,**

... The Maple Sugar Industry in Canada...  
Ottawa, Government Printing Bureau, 1913.

64 p. incl. 2 front. (1 col.) illus. 25½cm. (Canada. Dept. of Agriculture. Bulletin no. 2B)

1. Maple sirup. 2. Maple sugar.

Agr 14-253

Library, U.S. Dept. of Agriculture 7C16B no. 2B

The others are catalogued by ourselves under author, subject and series. The entire catalogue now numbers 165,000 cards, and is the only one of its kind in Canada. Without

it, we could not make use of the 35,000 publications in the library.

In regard to pamphlet material of minor importance the publication is simply put in a pamphlet box, and

no entry is made in the catalogue other than a subject card referring to the pamphlet box of uncatalogued material, e.g., canning and preserving, miscellaneous pamphlets, etc.

Entries are made in the catalogue for all publications purchased by the Department of Agriculture for any Branch.

#### ANNUAL REPORTS, ETC.

Annual reports are checked and kept up-to-date by a card index referring to them by the month in which each new issue should be received, e.g., under "Annual—January" would come cards referring to such reports as are likely to be received during January. If they do not come to hand at that time, it is easy to follow them up with a card

of request. Each time a post card is sent out a Graffco Vise Signal is put on the "Annual" card in order to check it the following month without necessitating going over the entire index. The same system is used for following up periodicals. We take practically all indexed in *The Agricultural Index*, some important ones from England and France, and try to obtain all Agricultural publications issued by various Governments.

Series of bulletins appearing irregularly are entered under country, province, state, etc., in a loose-leaved book by number only and are checked currently by means of the lists of new publications published in *THE AGRICULTURAL GAZETTE*, *The Canada Gazette*, the Monthly List of State Publications, etc.

## THE DOMINION EXPERIMENTAL FARMS

### THE DIVISION OF APICULTURE

#### PRACTICAL MEANS FOR INCREASING HONEY PRODUCTION

BY F. W. L. SLADEN, DOMINION APIARIST

**W**E owe it to ourselves and to the nation to prepare to produce as much honey as we can in 1918 and 1919.

The principal factor will be the weather, but we can do our part.

We can produce extracted honey in place of comb honey. During the past two years the price of extracted honey has risen to a greater extent than the price of comb honey, and extracted honey production is now decidedly more profitable for most bee-keepers. Two comb-honey supers fastened together will make a deep super for extracted honey.

Bee-keepers who are also farmers may give preference to alsike over red clover in a mixture with timothy sown for hay, and to alsike and white clover for pasture. When the alsike and timothy are ready for cutting, red clover has passed its best, and

late cutting will not lessen the value of alsike hay as much as that of red clover. The growing of alsike for seed and the pasturing of white clover will lengthen the clover honey flow.

The growing of more buckwheat in parts of the St. Lawrence Valley above the city of Quebec and in the south-western part of the province, would be of service.

Caution should be exercised in sowing sweet clover. It does not produce so much honey in Canada as in some regions of the United States, and its honey is liable to overpower the delicate flavour of the pure clover honey which is produced in many parts of the province of Quebec.

The indifferent season of 1917 has shown that some parts of the St. Lawrence Valley are over-stocked



with bees. In an over-stocked district much feeding is needed in June if the weather is unfavourable, and this will be very costly this year. The remedy is to move the apiary to one of the many clover locations where insufficient bees are now kept. Last year I visited the farming country around Lake St. John, and found it very good for clover production; a large yield per colony of excellent white clover honey was also being produced at Chicoutimi. The fear that the winter in that country is too long and cold for bees is groundless. With good winter stores consisting almost exclusively of clover honey the bees winter well even out-of-doors.

The more enterprising bee-keepers may try a location in which fireweed (*Epilobium angustifolium*), the chief honey plant of the north, abounds. This plant begins to yield honey about a week later than clover, and the honey flow lasts for six or seven weeks, whereas the honey flow from clover lasts only three or four weeks. I saw, this year, a vast tract of fireweed between Lake Edward and Kiskisink Stations on the Quebec and the St. John Railway, the result of forest fires that took place several years ago, but it was getting choked with other plants. It appears that those who depend on fireweed for honey production will have to move to a new location every few years, or will have to burn over the fire-

weed lands periodically. Fireweed is usually scarce the first year after a fire, but, spreading by its creeping roots, it becomes abundant the second year in moist rich ground, and usually continues plentiful for several years. A light fire does not kill the roots, but promotes their growth. We are starting an experiment of burning a plot of fireweed periodically near Chelsea, Que., in order to see whether a good stand of the plant can be maintained by this means.

If our colonies are very strong in early spring, it will sometimes pay to divide them not less than seven weeks before the honey flow, provided one has a fertile queen ready to introduce to the queenless half. For the present let us take care to protect the bees wintered outside with plenty of packing material around the hives, and place the hives in cases, preferably holding two or four hives each. Above all, protect the hives from winds in winter and early spring by means of windbreaks and fences or evergreens. If any colonies are likely to use up their stores before they can be examined, one may lay a cake of candy or a frame of honey-in-the-comb over the frames in early spring. To keep wax moths from damaging empty combs, which are the extracted-honey producer's most valuable possession, they should be kept in an out-house exposed to zero weather, and carefully protected from mice.

---

## EFFORTS TO INCREASE HOG PRODUCTION

BY J. H. GRIDDALE, B.AGR., DIRECTOR

THE Experimental Farms system is making every effort to encourage an increased production of hogs. At the Ottawa Farm we have now 60 brood sows, and have over 1000 brood sows on all the Farms and Stations. At the Lacombe Station, where swine breeding is being gone into very extensively, we have now on hand 700 hogs, and have already marketed

several carloads of finished hogs as well.

At the Experimental Stations at Cap Rouge, Ste. Anne and Lennoxville, in addition to our own work with swine, we are arranging to winter 100 sows altogether for the Quebec Department, in order to aid them in their effort to stimulate swine breeding in the province of Quebec.

# THE ENTOMOLOGICAL BRANCH

## THE BLACK CHERRY APHIS

BY WILLIAM A. ROSS, DOMINION ENTOMOLOGICAL LABORATORY, VINELAND STATION, ONT.

THE experiments, on which the following paper is based, were carried on during the past season at the Dominion Entomological Laboratory, Vineland Station, Ontario.

### HISTORY

The black cherry aphis has long been known in Europe and North

trees at Victoria, V.I.—no name or description is given. In the Entomologist's report for 1897, Dr. Fletcher gives the following interesting observations made by the Hon. Martin Burrell, at that time living near St. Catharines, Ontario.

"The principal damage has been done by the cherry aphis, *Myzus cerasi* Fab., whose attacks on the sweet cherry of this Peninsula (Niagara) were simply disastrous. I do not think I should be overshooting the mark if I said that half of the crop was ruined. I saw many cases where not only the foliage was covered, but even the fruit, and especially the stalks, with lice."

### HABITS AND DEPREDATIONS

The cherry aphis is primarily a pest of the sweet cherry. It occurs on, but, so far as I am aware, is never destructive to, the sour cherry.

The aphis feeds on the buds and tender foliage, and it may even attack the blossoms and fruit, especially the stems. Infested leaves become tightly curled and when badly

attacked, turn brown and die. One observer speaks of aphis infested leaves "looking as though they had been scorched by fire." The fruit may also be seriously damaged. During the summer of 1915, there was an outbreak of cherry aphis in the Niagara District, and in a Vineland orchard the fruit was so badly injured that most of it



FIG. 1.—CHERRY TREE ATTACKED BY *MYZUS CERASI*.  
NOTE WITHERED TIPS OF TWIGS. (Original)

America as a pest of cherry trees. On this side of the Atlantic the species was first recorded in 1851 by Dr. Asa Fitch (Cat. Homopt. N.Y. 65, 1851). What is probably the first reference to the aphis in Canadian literature is contained in Dr. Fletcher's Report of the Entomologist, 1885. Mention is merely made of the occurrence of aphids on young cherry

was left on the trees. The cherries were small, ripened irregularly and many of them were covered with honey-dew and black honey-dew fungus.

#### LIFE HISTORY

*The Egg.*—The minute, oval-shaped eggs (.68 mm. x .32 mm.) are deposited around the buds and on the

hatched, dark green stem mothers migrate to and settle on the buds where they feed on the green tissue. Later on, they attack the tender leaves and blossom buds. They reach maturity in four or five weeks and commence within a day or two to give birth to living young. Each individual may produce about 150 young.

*Summer Forms on Cherry.*—The progeny of the stem mothers develop into wingless forms. This generation is then followed by brood after brood of wingless and winged aphids. The winged lice leave the cherry and migrate to an alternate host plant. The apterous forms on the other hand remain on cherry and may be found on this tree from spring till late autumn. During the early part of the season they are very common, but as the summer wears along they diminish in numbers. This decrease is due to the production of migrants, to the effective work of the predacious enemies, and also to the drying up of the affected foliage.

*Migration of the Species.*—The winged or alate aphids, already referred to, develop during a period extending



FIG. II.—CONDITION OF INFESTED FOLIAGE, SHORTLY AFTER FRUIT IS SET. (Original)

rough bark of twigs and branches in the fall. They commence to hatch early in spring when the buds are swelling. In a cherry orchard (situated on the lake shore) which we had under observation during the past season, the period of hatching extended from the 17th to the 24th of April. All the eggs hatched at least nineteen days before the buds burst.

*The Stem Mother.*—The newly

tending from mid-June to the middle or latter part of August. As nothing was previously known concerning the fate of these forms, this matter was carefully investigated during the past season, and the discovery was made that the aphids migrate to Wild Pepper-grass, *Lepidium apetalum*\*, where they establish colonies of wingless lice.

\*Our migratory experiments suggest that other crucifers, e.g., Common Mustard, Wormseed Mustard and Shepherd's Purse, may serve as secondary host plants.



*Autumn Forms.*—In early autumn, migrant aphids are produced on Wild Peppergrass and return to the cherry where they deposit the egg-laying females. At the same time,

this time, all the eggs have hatched and the young stem mothers, feeding on the buds, are absolutely without protection. Thorough spraying at this stage with a good aphidicide, such as "Black Leaf 40," will destroy practically all the lice.

In orchard practice, the most economical method of applying this remedy is to delay the so-called dormant spray until just before the buds break and then combine "Black Leaf 40" with the lime sulphur wash.

The application of "Black Leaf 40" combined with lime sulphur or Bordeaux mixture and arsenate of lead at the time of the second regular spray, i.e., soon after the fruit is set, is sometimes recommended, but it is very questionable if this treat-



FIG. III.—BLACK CHERRY APHIS, *M. CERASI*; WINGLESS FORMS; MUCH ENLARGED. (Original)

the colonies on cherry trees give rise to large numbers of winged forms, which also give birth to egg-laying females. In other words, the sexupara—the mother of the sexual female—is produced on both the secondary and primary hosts.

Early in October, winged males appear on the secondary host plant and fly back to the cherry where they mate with the oviparous females.

No males are produced on the cherry. This means that in spite of the pronounced tendency of the black cherry aphid to live a monophagous life on cherry, the completion of its life cycle is still dependent on the existence of a secondary host.

*Control.*—The cherry aphid is most vulnerable early in spring just before the buds break. At



FIG. IV.—*M. CERASI* ON WILD PEPPERGRASS. (Original)

ment is at all effective, because at this stage many of the aphids are well protected by curled leaves. (See Fig. 2.)



FIG. V.—STAGE OF GROWTH AT WHICH SPRAY SHOULD BE APPLIED FOR CONTROL OF *M. CERASI*

#### THE DOMINION ENTOMOLOGIST HONOURED IN ENGLAND

**D**R. C. GORDON HEWITT, F. R.S.C., Dominion Entomologist and Consulting Zoologist, of the Department of Agriculture, Ottawa, has been awarded the Gold Medal of the Royal Society for the Protection of Birds, and at the same time was elected an Hon-

orary Fellow of the Society "in recognition of eminent services to the cause of bird protection" in England and Canada. There are but eleven other honorary fellows of the Society in different parts of the world.

## THE LIVE STOCK BRANCH

### A FEED DIVISION ESTABLISHED—THE METHOD OF WORKING

IN accordance with resolutions passed by the hog production conventions and representatives from the Eastern and Western Provinces respectively, a feed division, under the title of the Bureau of Feed Purchase and Distribution, has been established within the Live Stock Branch of the Dominion Department of Agriculture, and Mr. R. J. Allen, B.S.A., an expert on the subject has been placed in charge. As has been previously stated, an arrangement has been entered into between the Live Stock Branch and the Food Controller towards assisting farmers in securing feed for their stock. The price of bran and shorts has been definitely set by the Food Controller, and the embargo against export has been made practically absolute until the requirements of Canadian feeders are satisfactorily filled. Millers in applying for permit to export feed are required to state price and submit sample to the Food Controller by whom the application is referred to Mr. Allan, after which the sale will be subject to that official's refusal at the price named. If Mr. Allan is prepared to accept the feed at the price, he takes it over and arranges for its disposal in accordance with an agreement with the Provincial Departments of Agriculture, who have consented to constitute themselves the medium through which orders within their own territory shall be received. The Provincial Departments also guarantee the solvency of the consignee.

In addition to the quality of the mill feeds that is sold through

this channel, screenings from the elevators, now to be known as standard stock food, of which the Federal Live Stock Branch through contract negotiated by the Hon. Mr. Crerar has purchased the whole output, will be offered to farmers in the same manner. It is probable that a considerable amount of the feed will also be imported, purchased and sold by the Branch.

During the week ending December 8th the Ontario Department of Agriculture placed upwards of thirty cars of feed all from one mill. The transaction was carried out through the Co-operative Branch in communication with the offices of the District Representatives. The latter were advised at the beginning of the week that feed would likely be available and commenced at once to record orders. They were consequently ready to take advantage of the situation as soon as the feed was offered for sale.

As a result of the policy that has been adopted, *The Canadian Food Bulletin* of December 14th was able to state that no less than 140 carloads of bran and shorts which would otherwise have been exported to the United States were made available for Canadian farmers in a single week. As *The Bulletin* suggests the refusal of a license to export, if it can be proved that the feed can be sold for the same price in Canada as in the United States, will be an important factor in providing supplies for farmers who have responded to the call for an increased production of hogs.

# THE SEED BRANCH

## SCIENCE AND SEED TESTING

BY J. R. DYMOND, B.A., SEED ANALYST

THE object of seed testing is to determine before hand, as nearly as possible, the productivity of a given lot of seed. Thorough scientific research that will enable us to state with certainty the value in crop production of the various qualities of seed is essential before we can realise the maximum returns.

In crop production there are some factors,—climatic conditions for instance, which are unforeseeable and beyond man's control; there are others, such as the fertility and mechanical condition of the soil, which are only partially within our power to change; but in the seed used, we have a very important factor which is almost, or entirely, within the grower's control.

The preparation and seeding of a field of grain represents a considerable investment in money and labour. This investment is converted into a total loss if non-vital or otherwise unsuitable seed is used.

Some of the qualities of seed which influence the value of the crop are its vitality, variety, origin, purity and freedom from disease.

### VITALITY

Vitality may be defined as the ability of a lot of seed to produce strong vigorous plants. This is usually the result of a combination of qualities such as (a) percentage of vital seeds, (b) energy of germination, (c) amount of food material stored in the seed. The percentage of vital seeds may be determined by placing a known number of seeds under conditions most favourable to their germination. That the informa-

tion thus gained does not go far enough is shown by the fact that some seeds that germinate produce seedlings too weak to survive under natural conditions, while others grow into strong plants even under unfavourable conditions. Both sorts are vital, but the latter possess more vital energy or energy of germination. The accurate measurement of this quality of seeds has not yet been successfully or seriously studied. Some work on this subject has lately been undertaken in our laboratory. These two qualities, percentage vitality and energy of germination, are the result of the interaction of many varied causes—(1) the age of the seed, (2) atmospheric conditions of temperature and moisture under which seeds are stored, (3) moisture content of stored seeds, (4) maturity, (5) mechanical injury or disease.

The amount of food material stored in the seed by the mother plant, and available to the little seedling while it is developing roots and leaves in preparation for its own support, is often a deciding factor in determining the vigour of the plant.

The extent of the contribution of each of these factors, and perhaps others, to the vigour of a seedling under given conditions, are subjects which will require research of the most thorough and painstaking kind.

### VARIETY

Variety is recognized as one of the most important factors in crop production. The use of the Marquis variety of wheat, instead of the varieties previously grown by the grain growers of Western Canada, has



increased our wealth by millions of dollars. For every crop there is a variety which is better suited than any other for a particular set of conditions. Hand in hand with scientific work to originate improved varieties, there should be carried on researches to devise means of distinguishing the seeds of nearly related sorts so that one might assure himself before sowing the seed that the crop was going to be of the variety he desired to grow. Our normal supply of winter rape has been practically cut off since the war started, and much of the seed imported lately has been of varieties not suited for forage production. A method of distinguishing these varieties would be of considerable monetary value to the country, as would also means of distinguishing the seed of variegated alfalfa from that of the common variety. Many similar cases will readily occur to one familiar with the importance of variety in crop production.

#### ORIGIN

The origin, or place of growth, of seed is an important consideration often more or less closely connected with the question of variety. One of the objections to using seed grown under conditions widely different from those under which the seed is to be sown, is that the varieties are commonly not those best suited for the districts into which the seed is brought. Even when the varieties grown in the two localities are indistinguishable from the botanical point of view, it is usually best to use seed produced under conditions not too dissimilar to those under which the crop is to be grown. Therefore Dakota, Montana and Minnesota alfalfa seeds are better for Canadian conditions than Oklahoma or Kansas seeds, and red clover seed grown in northern Ontario produces plants capable of withstanding our severe winters better than seed grown much farther south.

In most kinds of crops the place of

growth of the seed has a far-reaching influence on the nature of the crop, and so it is certain that some day the study of the origin of seed will be a science in itself. Then the accurate determination of this important factor will be in strong contrast to our present haphazard methods.

#### PURITY

Purity, or the freedom of a lot of seed from weed seeds, other crop seeds, and inert matter, is at present the only quality of seed capable of exact determination. There is, however, still much need for scientific investigation in bulking, sampling and testing in connection with the enforcement of seed control laws.

#### SEED-BORNE DISEASES

Seed-borne diseases account for enormous losses in our annual yields. Smut is one of the few such diseases that has thus far received any considerable attention, but it is likely that in the future the control of seed-borne diseases will contribute very largely to increased crop production.

#### WEED CONTROL

Weed control is another important method of increasing the output and value of our crops. The weed seeds which occur as impurities in the grain and grass and clover seeds produced in Canada, besides increasing considerably the cost of production and handling, depreciate the value of the crop by millions of dollars. A large proportion of the weeds responsible for these losses are annual plants propagated entirely by seeds. The investigation of the seeding habits of these weeds and of the behaviour of their seeds in different kinds of soil under various climatic conditions and cropping systems, is of immense importance in itself. It is in connection with the investigation of these matters that the largest amount of scientific study of the behaviour of seeds has up to the present been

undertaken. This is pioneer work in a field from which results of immense value will come. Among the problems which have been or are now being studied are the causes of delayed germination, and the factors influencing longevity of seeds. The seeds of many of our commonly cultivated plants will grow almost, if not quite as well as soon as they ripen, as they will after being stored through the winter, but in the case of a large number of plants the seeds cannot be induced to grow under natural conditions until some time after ripening. In the case of wild oats, seeds which ripen and fall to the ground during the summer do not germinate as do the seeds of ordinary cultivated oats. It is in this delay in their germination that the weed character of the wild oats consists. W. M. Atwood,\* working in the Botanical Laboratories, University of Chicago, investigated the cause of this delay in germination and attributes it to a restriction of the oxygen supply due to the seed coat. When the seed coats were pricked or broken the seeds germinated quite readily, even when freshly ripened.

#### IMPERMEABLE OR HARD SEEDS

Many species of plants, especially in the Leguminosæ family, produce "impermeable" or "hard" seeds. Such seeds do not absorb water, and germinate as ordinary viable seeds do when placed under temperature

and moisture conditions favourable to germination. This impermeability is due to something in the seed coat which excludes water, for when the seed coat is scratched the seed readily absorbs water and germinates. Germination of impermeable seeds is brought about naturally by freezing and thawing, scratching of the seed coat by contact with the soil, and by various other means which render the seed permeable to water. Hard-seededness or impermeability is a device of the plant for guarding the vitality of the seed, for dry seeds retain their vitality much longer than seeds containing much moisture. Harrington† states that "impermeable seeds frequently retain their vitality for many years, sometimes for at least as many as 80 years."

In a recent article on the loss of vitality of seeds Crocker and Groves,‡ suggest that loss of vitality in seeds approaching air-dry condition is due to the slow denaturing, or coagulation, of certain protoplasmic proteins of the embryo. Their work "shows possibilities of throwing light on the nature of the process of loss of viability in seeds and of leading to a quantitative statement of the significance of various storage conditions (especially moisture content and temperature) upon the longevity of seeds."

\* Bot. Gaz. 57 (1914) No. 5, 386-414.

‡ Jour. of Agric. Research, U.S. Dept. of Agric. 4 (1916) No. 4, 761-796

† Proc. Nat. Acad. Sci. Vol. 1 p. 152—March 1915.

## THE DAIRY AND COLD STORAGE BRANCH

### THE APPLICATION OF REFRIGERATION TO FOOD

**M**R. J. A. Ruddick, Dairy and Cold Storage Commissioner for Canada, has been authorized by the Honourable, the Minister of Agriculture, to act on a Commission on the Application of Refrigeration to Food. This is an United States organization, whose chief object is to study the whole

question of refrigeration as applied to food and to co-operate with the Food Administration. Mr. Ruddick's departmental duties, which include a large amount of work for the Imperial war office, will not permit of his giving much time to the work of the commission, the scope of which is confined to the United States.



# THE HEALTH OF ANIMALS BRANCH

## SHEEP SCAB, ITS HISTORY AND CAUSE

BY A. E. MOORE, D.V.S., CHIEF TRAVELLING INSPECTOR

**S**HEEP scab, or as it is more properly called "Scabies in sheep," is an extremely contagious disease. It is caused by a small animal parasite, which lives on the skin of the animal and is known as a "mite," technically called "*Psorophytes Communis*." These mites are about (1-50) one-fiftieth of an inch long. They reproduce by laying eggs and multiply very rapidly; millions may be produced from a single pair in only a few days.

The disease has been known for ages, and has caused great losses in the sheep industry of nearly every country. When allowed to spread, sheep scab causes losses, first, in the production of wool, which is generally decreased and of poor quality. Second, shrinkage in mutton and lamb production, owing to the initiation of the disease causing an unthrifty condition of the animal and loss of weight. Third, death, sometimes in large numbers if treatment is not applied.

Although this disease is an extremely disastrous one and highly contagious it can easily be cured if the proper treatment is applied.

### SYMPTOMS

When the mite first becomes attached to the sheep it begins to feed by sucking the blood or lymph from the skin. It is generally supposed that its saliva is poisonous; at any rate the bite produces redness and great irritation of the skin. As this goes on an oozing of the lymph takes place and finally as the mites become numerous this lymph with other foreign matter of the skin collects and produces scabs or crusts.

When this stage is reached the wool begins to fall out, especially in patches on the shoulders, sides and back. The first symptom noticed is that of itching. The animal becomes restless, rubs against objects, scratches with its hind feet, and pulls tufts of wool from the sides and back with its mouth. If the skin is scratched by the hand the sheep makes a peculiar champing motion with its lips and jaws, evincing extreme satisfaction.

As the disease advances large areas of wool fall out; the scabs become thick, often crack and bleed, and many of the animals may die.

In the early stages it is sometimes difficult to positively diagnose sheep scab, as lice, ticks and other conditions of the skin often produce intense itching and sometimes loss of wool. An examination under the microscope of scrapings from the skin in these cases, however, will fail to reveal the mites or their eggs.

As the mites of sheep scab live on the surface of the skin, a close examination of scrapings containing scabs and tufts of wool will usually reveal the insects or their eggs.

### TREATMENT

As sheep scab is purely an affection of the skin, the only treatment consists of an external application which will kill the mite.

There are numerous dips used, but the most effective and the one adopted by this Department as the official dip consists of lime and sulphur and is made as follows:—

To make 100 gallons of dip, weigh carefully

10 pounds of unslaked lime and

24 pounds of flowers of sulphur. The lime is first slaked in enough water to make a paste; the sulphur is then added to this and thoroughly mixed to the consistency of mortar. Place this lime and sulphur mixture into 30 gallons of boiling water and boil for three hours, adding water as it boils away to keep the proportion the same. Keep stirring this mixture while it is boiling until the sulphur is all dissolved. After it has boiled for three hours allow the mixture to settle. Then carefully pour off the dark chocolate coloured fluid. Measure it and add enough warm water to make 100 gallons. Do not use the sediment as it is injurious to the sheep. If a large amount of dip is needed the same proportions of lime and sulphur are used, but in larger quantities.

There are many different kinds of vats for dipping sheep, from large cement swimming tanks which are used by the ranchers to portable tanks large enough to submerge one or two sheep at a time, and used by small sheep growers.

Detailed plans for vats or tanks will be supplied by the Veterinary Director General.

#### DIPPING

Dipping consists in completely immersing the sheep in the dip, either by swimming them through vats or holding them in smaller tanks.

In dipping sheep the following directions should be strictly followed:—

- 1st. The sheep should be clipped.
- 2nd. The dip must be kept warm, from 100° F. to 105° F.
- 3rd. The sheep must remain in the dip, completely covered, except the head, for at least two minutes (by the watch).

Care should be taken in handling the animals and the dip should not be allowed to enter the nostrils. When it is time to take the sheep out, place the hand over the nostrils

and quickly plunge the head under. Then remove the animal and place on a draining board which should be so arranged that the drippings will flow back into the tank.

As the first dipping only kills the live mites, this treatment should be repeated in from ten to fourteen days. During this interval the eggs which are on the animal have hatched, but the new mites are not mature enough to lay eggs and the second dipping will kill them, and the sheep will be completely cured. In a few very bad cases where the crusts are very thick a third dipping is sometimes advisable. All contact sheep, whether they show any symptoms or not, should be twice dipped.

#### CLEANSING AND DISINFECTION

Although the mite of sheep scab is unable to propagate except on the skin of sheep, it will live for some time on fences or with objects with which diseased sheep have come in contact. All pens and yards that have been occupied by scabby sheep are therefore infected, as tags of wool, straw or litter may harbour the mites and eggs.

Immediately after the first dipping the manure from all infected pens should be removed and ploughed under, and all pieces of wool and litter collected and burned. Every place occupied by diseased sheep and where they have rubbed should be thoroughly cleansed and disinfected and then whitewashed. The dip that is left over from the first dipping may be used to some extent for disinfecting the premises, but should not on any account be kept over to be used for the second dipping, as it soon spoils.

After the second dipping the pens should again be disinfected, and it is always advisable, if at all possible, to at once remove the sheep to new quarters which have never been occupied by sheep. All the infected pens and yards should be fully exposed to the sunlight, as the sun is one of the best destroyers of the mite.

#### THE CONTROL OF SHEEP SCAB IN CANADA

The disease has never existed to any alarming extent in Canada, but in the years 1907 and 1908 sheep scab was quite prevalent in Western Ontario. Inspectors of this Branch were constantly finding the disease, which nearly always traced to shipments from the Toronto Stock Yards. We located the origin of these shipments, and, after a great deal of investigating, finally found the centres of infection.

The diseased sheep, and all those in contact, were quarantined and twice dipped in lime and sulphur, and the premises thoroughly cleansed and disinfected. This work was done under the personal supervision of the inspector.

A general inspection of all the sheep in the infected counties was made, which resulted in our finding some scattered cases.

Two years later quite an extensive outbreak was discovered in the Province of Quebec. This was dealt with as above, and I am pleased to say that our work has proved entirely satisfactory. From that date to this, not one case of sheep scab has been found in any of the Eastern Provinces.

As sheep scab is one of the diseases dealt with by this Department, owners of sheep who suspect the disease should at once notify the Government and an inspector will be sent to investigate. If the disease proves to be scab, the inspector will give all assistance possible to secure its eradication.

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## THE FRUIT BRANCH

### PLAN TO CONSERVE CARS

A far-reaching plan designed by the railroads, the Transportation Division of the Fruit Branch and the food administration to conserve railway equipment and foodstuffs, has been in effect for some time.

Railroads entering Montreal and Toronto and a few other central distributing centres report regularly to Mr. G. E. McIntosh, Traffic Officer for the Fruit and Vegetable Committee, and in charge of fruit transportation, Department of Agriculture, every car of fruit, vegetable and other perishable foodstuffs which has been delayed 72 hours and over, either awaiting unloading or re-consignment or other disposition. In all cases reported by the railroads of undue detention of cars loaded, an effort is made to fix the responsibility and then take such steps as may be necessary to remedy

conditions and prevent a recurrence by the offenders.

The chief results which it is believed the new plan will accomplish are: the prompt unloading of cars containing perishable foodstuffs; the prevention of waste or loss of foodstuffs through deterioration because of undue detention in cars; the prevention of similar loss at shipping points because of lack of transportation facilities, owing to the undue detention elsewhere of loaded cars of perishable foodstuffs, and an increase in the amount of railway cars available for moving foodstuffs and other commodities necessary for the public welfare. During the short time this plan has been made effective, absolute proof has been given that many cars are held by small dealers for storage purposes, while producers have been unable to move perishable products because of a car shortage.



# PART II

## Provincial Departments of Agriculture

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### THE INDEXING AND FILING OF PUBLICATIONS

#### NOVA SCOTIA

##### THE COLLEGE OF AGRICULTURE

BY MISS MARGARET M. CALDWELL, LIBRARIAN

**I**N the filing of agricultural publications we use the Dewey Decimal System, the same as we use for library books. The publications are filed under subject rather than source. As far as the arrangement

under the different subjects is concerned, we file alphabetically under the different provinces or countries and do not take the name of the author into consideration.

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#### ONTARIO

##### THE AGRICULTURAL COLLEGE

BY MISS JACQUETTA GARDINER, LIBRARIAN, MASSEY LIBRARY

**T**HE subject of classification and indexing is one that no doubt has troubled the mind of man since the beginning of time,—and of woman. And some of us have had wonderful schemes in our minds, truly brilliant ideas which worked out as well as those of the old woman who determined to classify her pies. Some she marked "T.M." ('Tis Mince) and the others "T.M." (T'aint Mince), and believed that she had solved the problem forever.

However, there are several things which go to simplify one's task in the filing and indexing of agricultural publications. One is the manner in which these are issued; whether they come in uniform sizes and can be bound or kept in folders, or are found in all sizes and forms. Another is

whether or not the pamphlets are issued in any kind of order; some having numbers and some without; each division of a Department starting a new series of numbers, and then later on discontinuing their publication, etc. The U.S.D.A. publications are very satisfactory.

In Massey Library the following plan is followed:—

#### U.S. AGRICULTURAL PUBLICATIONS ARRANGEMENT

*Current Numbers.*—The current numbers of the various U.S. Experiment Stations and the U.S. Department of Agriculture Bulletins and circulars are entered in a loose-leaf book kept for that purpose, each Station or Division having its own

place in the book, and the bulletins and circulars of that particular Station being kept on separate pages.

Sometimes these come irregularly, and in order to have the pages of our book neat and uniform in appearance,

spaces are left to be filled in when the tardy ones appear. For our own convenience, the date when the pamphlet arrives is added to the end of the line. A sample page from our Bulletin Entry Book would read thus:

## CALIFORNIA BULLETINS

275.	Cultivation of belladonna in California.....	Dec. 1916
276.	.....	
277.	Sudan grass.....	Mar. '17
278.	Grain sorghums.....	Apr. '17
279.	Irrigation of rice in California.....	May '17
280.	.....	
281.	Control of the gopher.....	Je. '17

Then these current numbers are arranged with previous numbers in our Lang Document File, a vertical filing case containing 90 drawers, and having the name of each Experiment Station or Division of the U.S.D.A. indicated on the drawers. The bulletins and circulars of each Station are kept in the same file, their numbers running consecutively.

When all the numbers are complete and enough have come to make a volume uniform with the previous ones, they are bound, numbers still in consecutive order. Each volume has the name of the Experiment Station or whatever it is, stamped on the back, and the number of bulletins contained therein, thus:

630.5	Connecticut, Storrs.—Agric. Exper. Station
C75s	Bulletins. 1888-1912 nos. 1-74
il.	Storrs, 1888-1912

630.5	U.S.—Entomology, Bureau of.
U5eat	Bulletins. 1895-'97 Tech- nical ser. 1-7
il.	Wash. Gov't print, 1895-'97

## CALIFORNIA

## Bulletins

1-75

These bound volumes are then placed on the shelves, the States being arranged alphabetically.

As each volume is placed on the shelves, its number is added to a card in our general library card index, rather than make a new card for each volume. The latest date or number is added in pencil, then the next year one erases the previous number and adds the new one, thus:—

NOTE.—Sometimes two series may be added to a card, as above: especially if they are in the same Vol. They are better bound separately.

These cards in our general catalogue are merely to indicate what numbers we have. For the Bulletin Index, we received the printed catalogue cards from the Library of Congress and the U.S. Dept. of Agriculture at Washington. *The Library of Congress Cards* are filed in their own cabinets; subjects, authors and titles all together arranged alphabetically exactly as in a dictionary. When a certain publication is asked for, looked up in the index under the subject or author, it is a

very simple matter on finding the number indicated on the card to locate the bulletin either among the bound volumes on the shelves, or among the current numbers in the vertical file. Here is a most satisfactory catalogue card for U.S. Dept. of Agriculture publications:—

**Cattle tick.**

Graybill, Harry W.

... Methods of exterminating Texas-fever tick. By H. W. Graybill... Washington, Govt. print. off., 1912.

42 p. illus. (incl. map, plans) 23cm. (U.S. Dept. of agriculture. Farmers' bulletin 498)

Revision of Farmers' bulletin 378.

1. Texas fever. 2. Cattle tick.

Agr. 12-1199

Library, U.S. Dept. of Agriculture 1Ag84F no. 498

The cards for the Experiment Station publications are arranged under the scheme supplied by the U.S. Office of Experiment Stations, Washington, D.C., as follows:—

**3.1**

Soil Survey of Winnebago County, Illinois.—C. G. Hopkins

*Illinois Soil Report No. 12, Jan., 1916, pp. 76, pls. 2, figs. 7 (E. S. R., vol. 35, p. 421).*

A detailed soil survey, with soil map, is reported of Winnebago County, which is located in northern Illinois in the Iowan and pre-Iowan glaciations and is covered with a deposit of drift, loess, and alluvial material.

It is more difficult to locate what one wants in this file.

The *Reports of the various U.S. Experiment Stations*, State Departments of Agriculture, etc., are arranged on the shelves in separate groups in alphabetical order, each group having the years running consecutively. These are catalogued in our general catalogue thus:—

630.5 U.S.—Experiment Stations, Office of.

U5er Experiment station record. 1889-'16.

v.1-35 Wash. Govt. print.

630.5 ————— Index to v.1-25.

U5es

630.5 U.S.—Agriculture, Dep't. of.

U5r Reports. 1897-'13. nos. 57-98

il. Wash. 1897-'13

630.5 U.S.—Agriculture, Dep't. of.

U5y Yearbook. 1862-'16 il. Wash.

1862-'17

On the backs of all our cards we indicate what subject headings we have used, so that in case of destroying the cards at any time, we know how many to look for. The subject headings for all cards are typed in red; the rest of the card being a copy of the main author card.

**CANADA, DEPARTMENT OF AGRICULTURE PUBLICATIONS**

*Inland Revenue Bulletins* are first entered in a loose-leaf book, as in fact, are all our bulletins, which, however, has been mentioned before. Then they are filed in consecutive order in the vertical file until the numbers are complete, and sufficient have come to make a bound volume. Each volume is stamped on the back with the name and number of bulletins included, as was the case with the U.S. ones.

The card in our general catalogue is as follows:—

660.6 Canada.—Inland Revenue Dept. Laboratory of.

C2li Bulletins. 1887-'17 nos. 1-361  
Ottawa, 887—



Of course, this does not give any idea of the contents, but merely indicates the numbers we have on the shelves. These have no index, neither have we been able to make one for our own use, and so much valuable material is not as available as it should be.

The current *O.A.C. Bulletins* are filed in the same way, numbers running consecutively, until the bound copies come from the Department of Agriculture at Toronto. The card in the general catalogue for the whole series is as follows:—

630.4	Ontario Agricultural College.
O59	Bulletins. 1886'17
	nos. 3-17, 19-29, 31-34, 36-251
	il. Tor. 1886-1917

As each one comes to hand, an author card is made, thus:

Graham, W. R.
Farm poultry; with the results of some experiments in poultry houses and fattening chickens. il. 64p. (O.A.C. bulletin No. 189. Tor. 1911).

Also one or more subject cards, subject being in red type. These are then filed alphabetically in a separate O.A.C. card index.

The *Central Experimental Farm Bulletins* are arranged like the Inland Revenue publications, being bound when enough have come to bind in volumes uniform with the previous ones. These too, lack a good index. The card for the general catalogue is as follows:—

630.4	Canada.—Central Experimental Farm.
C21c	Bulletins. 1887-1911 nos. 1-68
	il. Ottawa, 1887-1911

The other Ottawa publications are filed in our vertical file under their various *subjects*, each group alphabetically by title, thus:—

#### LIVE STOCK:

Anthrax  
Bacon pigs  
Beef raising  
Ewe and lamb...etc.

Filing under subjects has its disadvantages, in that sometimes a bulletin could be placed equally correctly in two places, for instance, "Substitutes for corn in rations for feeding swine." One person might file the bulletin in the division with "Swine," while another, looking at it from a different standpoint, might place it under "Feeds and feeding." Of course, if it were numbered, and subject cards made under both the above headings, with the number of the bulletin indicated, it would be easier to find.

Filing under title is very unsatisfactory also, as very few people remember the exact title, and sometimes do not remember the Division publishing it, and, although the article can be found eventually, much time is lost in the search.

If all these publications were numbered consecutively, regardless of the Division publishing them, and an accurate index could be prepared for each twenty-five or fifty numbers, —(the number it would take to make a fair-sized volume)—as is the case with the U.S. Dept. of Agriculture bulletins, it would mean a great deal to those who cannot get a chance to index each pamphlet as it is issued. Of course, the "List of Publications" issued by the Publications Branch of

the Department of Agriculture at Ottawa, with the bulletins arranged under headings, is useful, but it could not be called an index.

The bound bulletins and reports of the Dairy and Cold Storage Commissioner are placed on the shelves with our Dairy books, and treated as such. The cards in the catalogue are as follows:—

638.05	Canada.—Dairy and Cold Storage commission.
C21b	Bulletins. 1905-'17 nos. 1-50 Ottawa, 1905-'17 Circulars 1-21

The reports of the various Provincial Departments of Agriculture, the Central Experimental Farm, etc., are each in a group, dates running consecutively. Cards for the latter thus:—

630.4	Canada.—Agriculture, Dep't of.
C21e	Experimental farms reports. 1887-'17 v. 1-29 il. Ottawa, Dawson, 1888-1916

On the reverse side of all these cards, the subject headings used are given.

The *Herd Books* are with our other books on live stock, carded in catalogue as follows:—

636.21	Canada. Holstein-Friesian Association.
C21h	Holstein-Friesian herd book; containing a record of all Holstein-Friesian cattle approved and admitted for registry . . . under the by-laws and resolutions. 1892-'16 v. 1-20 St. George, Ont. 1892-'17

Our Agricultural periodicals are arranged on the shelves in alphabetical order in each class. That is to say, all the general agricultural magazines are in one group, all the dairy numbers in another, heredity in another, etc., each periodical having its numbers in consecutive order. The numbers are bound as each volume is completed, and a card made for our general catalogue, thus:

630.2	Agricultural Gazette of Canada.
A27c	1914-'15 v. 1-2 Ottawa, Govt. print. (Canada, Dep't of Agric.)

For each book in the library, or series of bound articles, there is a shelf-list card made out, filed in a separate shelf-list cabinet. This is merely a record of the volumes on hand, so the cards are not filed alphabetically, but under the "call number" in the upper left-hand corner of each card. When taking inventory, these numbers correspond with the volumes as they appear on the shelves. Cards as follows:—

630.2	Agricultural Gazette of Canada.
A27c	25017, v. 1. 26173, v. 2.

*The Agricultural Index*, published five times a year by a New York firm, is a boon to all those who have occasion to refer to articles appearing in the agricultural periodicals. All the best magazines are included, as well as the U.S.D.A. and some Canadian publications. It was started in 1916, and is prepared by a staff of experts who have made available for instant

reference a great wealth of previously unmined information on agricultural topics.

The foregoing notes, do not, of course, cover the entire field of agricultural publications, but will give an idea of the general principle followed in the Ontario Agricultural College Library.

In conclusion we would like to add our plea to one heard at a conference of the Agricultural College Librarians at the American Library Association in Kentucky this summer,—a plea which came in the form of a question,—“When are the Canadian people going to index their publications so they will be of more use to us.”

## MANITOBA

### THE DEPARTMENT OF AGRICULTURE

BY T. J. HARRISON, B.S.A., PROFESSOR OF FIELD HUSBANDRY

IN the Field Husbandry Department of the Manitoba Agricultural College a small library of bulletins, circulars, newspaper articles etc., dealing with subjects of Agronomy is operated for the benefit of the staff. The stenographer has charge of the library. It is her duty to secure bulletins, etc., and clip the newspaper articles. These are filed in folders or binders according to subject.

The folders or binders are placed on the book shelves in a large book-case. The case is divided into six main sections—Improvement and Management of Cereal Crops; Improvement and Management of Forage Crops; Soils and their Management; Farm Management and Markets, etc.; Departmental Reports, and Journals of Scientific Associations, and Miscellaneous.

The Cereal section, for example, has one shelf for each of the more important cereal crops. These are

then subdivided. Wheat, for instance, is divided into varieties, seed, seeding, cultivation, harvesting, stacking, storing, and general. All articles and bulletins dealing with seed are found in one folder, which has an index in the front enumerating the material in the folder and stating in what folders further information on this subject may be obtained. For example, information on harrowing of growing wheat crop is desired the folder is taken down. In the folder is found all the articles dealing with this subject, and in addition the index will show that a bulletin in the general folder on “Wheat Growing” on a certain page also contains information on this subject.

For a small library like this the subject method of filing is preferable to the source, because in Departmental work it is the information on one subject and not from one particular source that is desired.

### THE AGRICULTURAL COLLEGE

BY MARY G. WOOD, LIBRARIAN

I AM only able to make reply in regard to the methods used in the Library. We have a separate card index for official agricultural publications. They are entered under subject headings. They are arranged in sections which correspond to the various departments of the College; that is to say, there are

separate drawers for Animal Husbandry, Entomology, Soils, Engineering, etc., etc.

The subject headings in the various sections are in alphabetical order, and they have all been recently revised and the cards rearranged in accordance with the headings used in *The Agricultural Index*; so that we

might have standardized headings throughout, and know that one topic would always be found under the same heading in both *The Agricultural Index* and in our own card catalogue. This also assists in making out the cards, when doubt arises as to the headings which are to be used.

This arrangement of the card index in departments is very convenient for the use of departments, but it does, of course, result in some confusion and overlapping, as, for instance, in the case of Soils and Chemistry; and it is debatable whether it would not be better to entirely rearrange the catalogue in dictionary order like *The Agricultural Index*.

Our files (pigeon holes) are divided into two main sections—Canada and the United States. These are subdivided into the various official departments, alphabetically, e.g.:—

Canada—

Conservation  
Dairy and Cold Storage Branch  
Entomological Branch  
                                    &c. &c.

with subdivisions, e.g.:—

Experimental Farms--Bulletins.  
                                    "                    Circulars.  
                                    "                    Reports.

The United States publications are

arranged in the same way.

This arrangement applies to Dominion Government and United States Government publications only. Those from the various provinces and states are filed according to source and number; this is to say, bulletins and circulars from, say Illinois or California, are filed under the names of those states.

The binding-up of the official publications corresponds to the arrangement in filing.

Up to 1916 a card was made out for every publication received; now that we have *The Agricultural Index* we make cards for only those publications which will not eventually be included in this *Index*. Although this has resulted in great conservation of time, cards and catalogue space, it is not entirely satisfactory, as the items are frequently not included in the *Index* until several months late. We, therefore, intend to revert to indexing those publications especially and probably all the Canadian, which are likely to be needed and called for soon, in order that they may not be lost sight of meanwhile—pending their inclusion in *The Agricultural Index*.

## SASKATCHEWAN

### THE DEPARTMENT OF AGRICULTURE

BY F. H. AULD, DEPUTY MINISTER

**A**GRICULTURAL publications filed in this Department are grouped according to origin and not according to subject, except that to a limited extent for my own use I am keeping publications topically.

We have two types of filing cabinets. The original equipment consists of a number of sectional cases similar to those used in law offices for filing legal documents, with the exception that each drawer is suffi-

ciently large to file the ordinary bulletin vertically. Later purchases of equipment consist of steel cases, and these are more convenient for the reason that the vertical drawers remain in position when partly open and bulletins thus filed are more convenient for reference.

Our library of bulletins could be made more useful and more readily accessible by a suitable system of filing.



## ALBERTA

## THE COLLEGE OF AGRICULTURE

BY A. A. DOWELL, B.S., PROFESSOR OF ANIMAL HUSBANDRY

WHILE teaching at the Iowa Agricultural College, Ames, Iowa, it became necessary to have all the material on certain subjects available for ready reference. Many times a bulletin or agricultural journal containing valuable information could be found only after loss of considerable time in searching through the mass of literature. To overcome this difficulty, I worked out a system of filing the desired publications. The scheme outlined below is original with me and no doubt can be improved upon. However, it has given excellent satisfaction in my office, and is now being used by other men in like professions, as well as by a few farmers with equal success.

The index cards used are 3" by 5", and may be either plain or ruled. All cards are kept in a small card index cabinet. If one wished to avoid this expense, a small drawer could be made at home to answer the purpose. All information is filed by subject instead of source.

The accompanying index card, numbered I, shows how the subjects are arranged. All the subjects under "S" are listed on one card or more if needed, for instance, a farmer is interested in swine, sheep, silos, soils, soiling crops, Shorthorn cattle, seed laws and strawberries. These are

in grain. This is added to the list as subject number 9. Any number of subjects can be added as desired. Twenty-six cards, one for each letter of the alphabet, are placed in order at the front of the card index drawer to show just what subjects have been filed. It is a simple matter to run through this list to see if one has any information on any particular subject.

For instance, we wish to gather material on the subject of "Bacon Hogs and the British Market." By turning to the card "S," swine is found to be the first subject. Then turn back through the index cards and the desired pamphlet is found as I. S. 1.16. The Roman numeral I. indicates which drawer of the bulletin cabinet contains the pamphlet; "S" indicates where it is to be found alphabetically; the small figure 1 shows the number of the subject, and point 16 (.16) gives the number of the bulletin. As new bulletins appear they are added and numbered from this on, as point 17 (.17), point 18 (.18), and so on indefinitely.

The index card, numbered II., shows that the subject of "The Bacon Hog and the British Market" was published in pamphlet No 21, in 1916, by John Bright and H. S. Arkell, under the direction of the Minister of Agriculture at Ottawa. In other words, the card shows the publication, date, author, and station or Department publishing.

I	
"S"	
I	1. Swine.
I	2. Sheep.
II	3. Silo-construction—silage.
II	4. Soils—soil areas.
II	5. Soiling Crops.
I	6. Shorthorn Cattle.
II	7. Seed Laws.
II	8. Strawberries.
II	9. Smut in Grain.

II	
I	S 1.16
The Bacon Hog and the British Market.	
"Production and Thrift."	
Pamphlet No. 21.	
1916	By John Bright.
	H. S. Arkell.
Department of Agriculture	
Ottawa.	

listed as shown on card "S," each with a separate subject number. Later he may get some information on smut

Material from agricultural journals is filed in the same way. For example, the accompanying card, I. S. 1.27, numbered III., shows that the subjects of Permanent Hog Pastures, Buckwheat Screenings for Hogs, Finishing Hogs at Present Prices, have been discussed in the October 20th, 1917, issue of *The Nor'-West Farmer*. These publications may be put back on the shelf in order of publication for such references.

		III
I	S	1.27
Permanent Hog Pastures.		
Buckwheat Screenings for Hogs.		
Finishing Hogs at Present Prices.		
The Nor'-West Farmer		
Oct. 20, 1917.		

Bulletin filing cabinets can be purchased through furniture stores, or substitutes can be made at home. Each drawer or shelf is numbered with a Roman numeral. Index card

enclosed (numbered II.) shows that the subject of swine is filed in cabinet drawer No. I. The subject of "smut in grain" as shown on card S (numbered I.) is found in cabinet drawer No. II.

The name of the person filing the information or the Department concerned can be written on the upper right hand corner of the bulletin. The number in the upper left hand corner indicates its place in the cabinet. If the bulletin on "The Bacon Hog and the British Market" is taken out for reference, it is a simple matter to return to the cabinet and place it in cabinet drawer I., under "S", subject number I., and between bulletins .15 and .17.

If new bulletins are later received by the same author on a similar subject, the old bulletin and corresponding index card, may be destroyed and the new bulletin and index card substituted.

## BRITISH COLUMBIA

### THE DEPARTMENT OF AGRICULTURE

BY A. B. TWEDDLE, STATISTICIAN

**D**ESCRIBING the system for filing the incoming publications in this Department,—this is based on the Decimal Classification and Relative Index by Melvil Dewey, A.M., Director, New York State Library, but somewhat simplified. The Dewey classification is to be found in all the leading libraries in the United States and Europe.

#### BOOKS

All books are kept on separate shelves and in ordinary numerical order, i.e., there may be two books each on Fruits, Poultry and Butter, in which case they would stand number 634<sub>1</sub>, 634<sub>2</sub>, 636.5<sub>1</sub>, 636.5<sub>2</sub>, and 637<sub>1</sub>. This method of numbering was found to be more readily understood by the members of the Department and answers a library of this

size, containing, as it does, about 1000 books. For a more extensive library, and where an efficient librarian is in attendance, it is believed C. A. Cutler's system of numbers would be more satisfactory and which is universally used. The reference catalogue of these books consists of a card index. Separate "Author" and "Subject" cards are typed and arranged together in alphabetical order. The "Author" cards are typed in black and the "Subject" cards in red. The number given the book on the shelf is shown on the upper left-hand corner of the card.

#### BULLETINS, CIRCULARS ETC.

Bulletins, circulars, etc., are, as far as possible, kept in strong telescope cases which, as they stand,

are 10½" high x 4¾" wide and 7¾" deep (inside measurement). These are grouped on the shelves according to countries. Since the United States publications comprise the largest number, these are sub-divided—"Federal" and "States"—the latter being arranged in alphabetical order on the shelves. Another group is "British Empire," and all countries included therein are also arranged in alphabetical order. The balance come in the "Foreign" group in similar order.

The cases in each group are each given a number as called for by the Dewey classification. For instance, number 632 will be found in this classification to refer to "Pests, hindrances, blights, and insects"; and 635 refers to "Kitchen garden." It may be that all bulletins included under 632 may require twenty cases; therefore, these would be numbered 632

("B"  
B-1 to 20

Bulletin). One case, on the other hand, may not only include all the bulletins on a particular subject, but circulars, reprints, etc., as well. If so, these would again be arranged alphabetically, such as Bulletins "B," Circular "C," and so on, and in the same manner for all coming under 635, which number would follow in its proper numerical order on the shelf.

As to whether it is better to file a publication under its source or subject, I may say that, in the case of books, this library files under "author," for while there are some which might appear to be published by a particular Department yet the author may be a popular authority.

In the case of bulletins, circulars, reports, reprints, etc., the Department, Branch or Office publishing these is shown on the index card, for while several bulletins may be written by one author, the author of the same series may later change while the Department or Branch is not so apt to.

#### CATALOGUES

The catalogue (card index) consists of two parts—one for books and the

other for all other publications.

A particular subject may be more readily referred to by the use of tab cards showing the most popular subjects, such as heredity, plants, potatoes, tree planting, etc.

In compiling the catalogue, the American Library Association "List of Subject Headings" was found very useful in this library. This list is published by the American Library Association Publishing Board, Chicago, Ill., and contains a very complete list of those headings most commonly known and used in libraries. It further prevents much duplication of "Subjects," which is difficult to avoid without some such guide.

In dealing with new publications, which may arrive in too large numbers to permit of immediate filing, some temporary arrangement should be provided. This may be done by grouping according to country. For instance, all U.S. Federal publications should be put in one group, so subdivided as to have all bulletins of the Bureau of Industry together and in numerical order, and so on with other divisions of the Department of Agriculture.

All publications of the various States should be arranged in the same manner. This is important, since it is the more recent publications which are generally referred to most frequently.

If possible, it is far more satisfactory to employ the services of a library graduate in organizing a library of any extent, for while the catalogue otherwise compiled may answer the purpose, yet the time consumed will prove more expensive. This has been the experience in this Department.

In laying out space for publications properly catalogued, it is well to make ample provision for expansion, for it will be found in checking over old lists that there are not only many missing numbers in a series, but that your library has not been on the mailing list of many publishers on which it should have been.



## SHORT AGRICULTURAL COURSES

### NOVA SCOTIA

**T**HE usual short courses covering all phases of agricultural instruction will be held at the College of Agriculture, Truro, from

January 2nd to 11th. In addition to this a series of short courses will be held at other centres of the province.

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### QUEBEC

**T**HE programme of short courses arranged for the northern division of Quebec covers a period from January 8th to March 28th, takes in 11 different places, and extends over four days at each place. The subjects that will be taken up include every branch of farming, private and professional bee-keeping and poultry keeping, home and market gardening, various lines of household science, farm hygiene and the control of injurious insects and plant diseases. The courses for the southern section of the province cover the month of January, starting on the seventh, a week being allowed to each of four

centres. The lectures and subjects will be very much the same as in the northern section, but will be treated by a different staff of instructors, all of whom will be from the Provincial Department of Agriculture or the School of Agriculture at Ste Anne de la Pocatière. Special demonstrations will be given at each course, and lantern slides will be shown in the evening of subjects taken up during the day. Lectures will be given twice every day, morning and afternoon. The courses are arranged largely out of funds derived under THE AGRICULTURAL INSTRUCTION ACT.

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### MACDONALD COLLEGE

**A** FOUR months course in dress making will commence on January 8th. Women from towns will be required to pay a fee of \$25.00 for the course. Farmers' wives and daughters may obtain the course free. A course in household science will be held from January 22nd to the 25th. This is restricted to farmers' wives or daughters. Preference will be given to members of Homemakers' Clubs. Short courses for men will include horticulture, February 5th to 8th. animal and cereal husbandry, Febru-

ary 12th to 15th; poultry, February 19th to 22nd.

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**T**HE regular short course in household science will be given from January 3rd to March 22nd. This will include cooking, needle work and general house-keeping. The students also have the choice of home gardening or poultry as an optional course. The course will be conducted under the direction of Miss Anita E. Hill, Director of Household Science.



# ONTARIO AGRICULTURAL COLLEGE

**S**HORT courses of instruction will be given at the Ontario Agricultural College during the winter months. The following is a list of the courses to be held with the date of each.—

SUBJECT	DATE	
Stock and Seed Judging.....	Jan.	8th to 19th
Poultry Raising.....	Jan.	8th to Feb. 2nd
Horticulture.....	Jan.	21st to Mar. 2nd
The Dairy Courses:—		
The Factory Dairy Course.....	Jan.	2nd to Mar. 22nd
The Farm Dairy Course.....	Jan.	21st to Feb. 16th
Cow Testing.....	Mar.	25th to Apr. 3rd
Ice Cream Making.....	Mar.	25th to Mar. 30th
Soft Cheese Making.....	Mar.	25th to Mar. 30th
Bee-keeping.....	Jan.	8th to Jan. 26th
Drainage and Drainage Surveying.....	Jan.	8th to Jan. 19th
Farm Power, including farm tractors, gasoline engines, motors, etc.....	Jan.	21st to Feb. 2nd
Business and Marketing.....	Jan.	8th to 19th

# APPOINTMENTS AND RESIGNATIONS

**D**URING the past year many changes were made in the personnel of the staffs of the Provincial Departments of Agricultural and of the Agricultural Colleges. Although some of these have already been published, in order that the readers of THE GAZETTE may have a complete record, the lists as supplied by heads of the respective institutions are herewith given:—

## PRINCE EDWARD ISLAND

### DEPARTMENT OF AGRICULTURE

#### *Resignations*

W. R. Reek, B.S.A., Director of Agricultural Instruction.  
W. J. Reid, District Representative, Prince County.  
J. L. Tennant, B.S.A., Instructor in Soils.  
Miss Alberta MacFarlane, Supervisor of Women's Institutes.

#### *Appointments*

W. J. Reid, Director of Agricultural Instruction.  
J. L. Tennant, B.S.A., District Representative for Prince County.

#### *Died*

M. Coughlan, B.S.A., District Representative for King's County, died in April.

## NOVA SCOTIA

### *Resignations*

C. B. Gooderham, B.S.A., Provincial Apiculturist and Assistant Botanist.

## NEW BRUNSWICK

### DEPARTMENT OF AGRICULTURE

#### *Resignations*

J. B. Daggett, Secretary for Agriculture.  
N. W. Eveleigh, Dairy Superintendent.  
Seth Jones, Poultry Superintendent.  
J. E. DeGrace, Superintendent, Agricultural Societies.  
H. B. Durost, Instructor in Soil Fertility and Beekeeping.  
J. W. Mitchell, Live Stock and Dairy Commissioner.

#### *Appointments*

W. R. Reek, Secretary for Agriculture.  
M. A. MacLeod, Superintendent, Agricultural Societies.  
L. T. Floyd, Instructor in Beekeeping.  
Thomas Hetherington, Live Stock Instructor.  
Ben Gallant, Assistant Dairy Superintendent.  
J. Hayes King, District Representative, Moncton.  
Jas. Brenner, Jr., District Representative, Chatham.  
A. C. Taylor, District Representative, Woodstock.  
John Woods, Instructor in Drainage.  
A. C. McCulloch, B.S.A., Poultry Superintendent.

*Died*

C. W. McDougall, Dairy Superintendent, died as result of automobile accident.

## QUEBEC

## MACDONALD COLLEGE

*Resignations*

Miss Katherine A. Fisher, Head of School of Household Science.

*Appointments*

Miss Anita E. Hill, Head of School of Household Science.

Miss Edla M. Lindholm, Instructor in Household Science.

## ONTARIO

## DEPARTMENT OF AGRICULTURE

*Resignations*

W. R. Reek, Assistant Commissioner of Agriculture.

W. J. Bell, Live Stock Specialist.

R. S. Duncan, District Representative, Durham County, Port Hope.

R. H. Clemens, Manager, Demonstration Farm, Monteith.

L. H. Hanlon, District Representative, Kenora District, Kenora.

J. Laughland, District Representative Simcoe County, Collingwood.

A. S. Smith, District Representative, Algoma District, Sault Ste. Marie.

W. G. Nixon, District Representative, Timiskaming District, New Liskeard.

C. Graham, District Representative, Timiskaming District, New Liskeard.

J. N. Allen, District Representative, Wentworth County, Hamilton.

H. B. Roy, District Representative, Sudbury District, Hamilton.

*Appointments*

Dr. G. C. Creelman, Commissioner of Agriculture.

W. R. Reek, Assistant Commissioner of Agriculture.

Justus Miller, Assistant Commissioner of Agriculture.

W. J. Bell, Principal, Kemptville Agricultural School.

Malcolm J. McQueen, Live Stock Specialist.

R. S. Duncan, District Representative Supervisor, Toronto.

R. H. Clemens, District Representative, Wellington County, Arthur.

L. H. Hanlon, Manager, Demonstration Farm, Monteith.

E. E. Reilley, District Representative, Kenora District, Kenora.

F. A. Wiggins, District Representative, Simcoe County, Collingwood.

J. W. Wadsworth, District Representative, Algoma District, Sault Ste. Marie.

C. Graham, District Representative, Timiskaming District, New Liskeard.

J. M. McIntosh, District Representative, Timiskaming District, New Liskeard.

W. G. Marritt, District Representative, Wentworth County, Hamilton.

G. H. Dickson, Pomologist, Horticultural Experiment Station, Vineland Station.

F. S. Reeves, Expert in Plant Breeding, Horticultural Experiment Station, Vineland Station.

## ONTARIO AGRICULTURAL COLLEGE

*Resignations*

H. S. Fry, B.S.A., Demonstrator in Horticulture.

J. R. Spry, B.S.A., Lecturer in Physics.

Morley Pettit, Lecturer in Apiculture.

Geo. E. Day, Professor of Animal Husbandry.

*Appointments*

R. C. Moffatt, M.A., Lecturer in Physics.

W. H. Sproule, Demonstrator in Dairying.

Miss H. Theodora Job, Instructor in Normal Methods.

Miss E. J. Rogers, Demonstrator in Laundry and Household Administration.

Miss Rona W. Fraser, Supervisor of House Practice.

*Died*

The staff of Macdonald Institute suffered the loss in August by the death of Miss Grace Greenwood, Instructor in Normal Methods.

## MANITOBA

## DEPARTMENT OF AGRICULTURE

*Resignation*

N. E. Smith, Manager, Killarney Demonstration Farm.

*Appointments*

W. W. Fraser, Live Stock Commissioner.

L. A. Gibson, Dairy Commissioner.

S. A. Cox, Provincial Veterinarian.

J. A. Macdonald, Dairy & Produce Grader.

D. E. McKenzie, Inspector of Creameries.

H. E. Walker, Manager, Killarney Demonstration Farm.

## AGRICULTURAL COLLEGE

*Resignations*

Professor F. S. Jacobs, Professor of Animal Husbandry.

*Appointments*

G. W. Wood, Professor of Animal Husbandry.

R. W. Brown, B.S.A., Professor of Dairying.

## SASKATCHEWAN

## DEPARTMENT OF AGRICULTURE

*Resignations*

W. A. Wilson, Dairy Commissioner.

*Appointments*

F. M. Logan, Dairy Commissioner.  
M. P. Tullis, Acting Weeds and Seed Commissioner.

## COLLEGE OF AGRICULTURE

*Appointments*

L. E. Kirk, B.A., B.S.A., Instructor in Field Husbandry.  
Arthur Henry, B.S.A., Instructor in Field Husbandry.  
Geo. Green, B.S.A., Instructor in Field Husbandry.  
Hugh Ross, Instructor in Animal Husbandry.

*Casualties*

Lt. H. N. Thompson, Weeds and Seed Commissioner.  
Lt. N. R. Pawley, Asst. Weeds and Seed Commissioner.  
Capt. J. C. Smith, Live Stock Commissioner.

## COLLEGE OF AGRICULTURE

*Resignations*

Evan A. Hardy, Assistant Professor in Agricultural Engineering.

## ALBERTA

## DEPARTMENT OF AGRICULTURE

*Resignation*

J. Clements, Asst. Superintendent, Fairs and Institutes.

*Appointments*

M. E. Meyers, Superintendent of Demonstration Farms.

J. H. Hare, Poultry Marketing Commissioner.

## BRITISH COLUMBIA

## [DEPARTMENT OF AGRICULTURE

*Resignations*

J. H. McCulloch, District Agriculturist, Kamloops; in charge of Dry Farm Experimental Stations.  
R. M. Winslow, Provincial Horticulturist.  
S. H. Hopkins, Assistant Live Stock Commissioner and Brand Recorder.  
J. H. McCulloch, District Agriculturist, Kamloops.  
R. M. Winslow, Provincial Horticulturist and Secretary British Columbia Fruit Growers' Association.  
W. E. McTaggart, Prairie Fruit Markets Commissioner.  
H. E. Walker, District Agriculturist, Prince George.  
J. R. McLennan, Editor, *Agricultural Journal*.

*Appointments*

Geo. C. Hay, District Agriculturist, Kamloops, in charge of Experimental Dry Farms at 105 Mile and Quilchena.  
M. S. Middleton, Acting Provincial Horticulturist, at Victoria in succession to R. M. Winslow, resigned.  
W. T. Hunter, B.S.A., District Field Inspector at Penticton.  
H. H. Evans, District Field Inspector at Vernon under P. E. French, Assistant Horticulturist.

## EGG LAYING COMPETITIONS

## ALBERTA

BY A. W. FOLEY, POULTRY SUPERINTENDENT

**A**N egg-laying competition covering eleven months was concluded at the Government Poultry Farm, Edmonton, on October 14th, 1917. This was the third competition held under the supervision of the Alberta Department of Agriculture, by arrangement with the Alberta Poultry Association.

The competition included 22 pens that began with 6 birds each, hatched in 1916, and embraced Barred and White Rocks, White

Wyandottes, Buff Orpington, White and Brown Leghorn, Rhode Island Red and White Cornish. At the conclusion of the test pen 9 had been reduced to five birds, pen 16 to three and pen 7 to two. Four of the pens were from British Columbia, and the remainder from Alberta.

## THE EGGS LAID

The following table shows the total eggs laid during the competition, and the relative standing of the different pens:—

<i>Pen</i>	<i>Breed</i>	<i>Total Eggs</i>
12.....	Barred Rocks.....	826
19.....	White Wyandottes.....	820
13.....	White Wyandottes.....	802
18.....	White Wyandottes.....	758
11.....	Buff Orpington.....	672
3.....	White Leghorns.....	616
2.....	Brown Leghorns.....	604
22.....	Barred Rocks.....	603
15.....	White Wyandottes.....	588
6.....	Buff Orpingtons.....	565
4.....	Rhode Island Reds.....	561
14.....	Buff Orpingtons.....	501
21.....	White Wyandottes.....	499
17.....	White Wyandottes.....	497
9.....	Barred Rocks.....	463
5.....	White Rocks.....	449
20.....	White Wyandottes.....	410
1.....	White Leghorns.....	388
16.....	Rhode Island Reds.....	373
8.....	White Cornish.....	342
10.....	White Wyandottes.....	337
7.....	White Wyandottes.....	248

#### INDIVIDUAL RECORDS OF WINNING PENS

The number of eggs laid in eleven months by individual hens in the four prize winning pens are shown as follows:—

Pen 12—	80	142	164	146	118	180
“ 19—	157	104	167	133	118	141
“ 13—	122	118	128	165	114	155
“ 18—	142	86	140	157	141	84

#### INDIVIDUAL RECORDS AND RECEIPT

The following table gives the individual records and receipts for the five hens laying the largest and the five laying the smallest number of eggs during the eleven month period:—

		<i>Highest</i>		
Hen 72 in	Pen 12.....	180.....	\$6.42	
“ 121 “	22.....	171.....	6.63	
“ 86 “	15.....	169.....	6.48	
“ 105 “	19.....	167.....	6.38	
“ 76 “	13.....	165.....	6.35	

Total.....\$32.26

		<i>Lowest</i>		
Hen 55 in	Pen 10.....	2.....	\$ .08	
“ 60 “	10.....	2.....	.06	
“ 27 “	5.....	30.....	.86	
“ 48 “	8.....	32.....	1.01	
“ 102 “	17.....	33.....	1.03	

Total.....\$3.04

The highest individual records and receipts for the winter months, November 15th, 1916, to April 14th, 1917, were:—

<i>Hen</i>	<i>Pen</i>	<i>Eggs</i>	<i>Receipts</i>
121.....	22	79	\$3.55
76.....	13	69	3.03
105.....	19	67	3.07
63.....	11	67	3.00

The highest pen records and receipts for the winter months, November 15th, 1916, to April 14th, 1917, were:—

<i>Fen</i>	<i>Eggs</i>	<i>Receipts</i>
13.....	336	\$14.53
19.....	314	13.65
18.....	300	12.97

The total number of eggs laid was 11,922, which sold at an average price of 43.39 cents per dozen, amounting to a total of \$430.31.

#### FEED CONSUMED AND COST

	<i>Lb.</i>	<i>Cost</i>	<i>Per Cwt.</i>
Mash.....	3,563	\$67.20	\$1.84 to \$2.00
Wheat.....	783	18.80	1.85 “ 2.90
Oats.....	1,602	28.15	1.40 “ 1.90
Barley.....	488	8.91	1.75 “ 2.00
Corn.....	304	7.53	2.25 “ 3.00
Beef Scrap.....	1,077	45.47	4.00 “ 5.50
Green Bone.....	153	6.12	4.00
Buttermilk.....	2,400	3.90	.12 ½
Grit.....	59	.88	1.50
Oyster Shell.....	226	3.39	1.50
Totals.....	10,655	\$189.45	



## RECEIPTS AND EXPENDITURES

Total receipts.....	\$430.31
Total cost.....	189.45
Profit on eggs sold over cost of feed.....	\$240.86
Average receipts per hen.....	\$ 3.16
Average cost per hen.....	\$ 1.37
Average profit per hen.....	\$ 1.79
Average receipts per dozen.....	43.39c
Average cost per dozen.....	19.06c
Average profit per dozen.....	24.33c

and 15lb. of beef scrap were added and shorts to partially dry the mash. This was fed three times a week in the evening.

## GRAIN RATION

A light feed of whole oats was given each morning in the litter. During the winter a light feed of wheat, oats and barley and occasionally a little corn was given at noon to insure exercise. Whole wheat was fed in the evening when no mash was given.

## CARE AND MANAGEMENT

## HOUSING

The birds were housed in a building constructed of one thickness of drop-siding on outside studding, lath on the inside of studding and space stuffed with straw. Cotton windows were used entirely with drop curtain in front of roosts. The birds were housed three pens (18 birds) to a section, size 12ft. x 12ft.

## RATIONS AND FEEDING

<i>Dry Mash Rations:</i>	Lb.
Bran.....	25
Shorts.....	25
Oat Chop.....	25
Alfalfa meal.....	12½
Bone.....	5
Charcoal.....	1
Barley chop.....	12½

This mixture was constantly before the birds in self-feeding hoppers. Beef scrap, oyster shell and grit were also kept before the birds in hoppers.

## WET MASH

A wet mash consisting of the dry mash ration to which boiling water

## GREEN FOOD

Throughout the winter months alfalfa and sprouted oats were given as green feed. During the summer months sufficient green feed was produced in the runs.

## WEATHER CONDITIONS

The weather throughout the competition may be called unusual in many respects. The severe weather of January had a serious effect on the records.

## HEALTH OF THE BIRDS

The mortality of the birds was much greater than in the previous competitions. Many of the birds entered did not appear to have the constitution and vitality necessary for heavy egg production.

Two birds died from the bursting of blood vessels, two of ovarian trouble, one of ulcerated intestines, and seven of a peculiar disease the exact nature of which could not be determined.

The competition was in charge of Mr. J. Shackleton, manager of the poultry plant.

## BRITISH COLUMBIA

BY J. R. TERRY, CHIEF POULTRY INSTRUCTOR

THE sixth international egg-laying contest was held under the auspices of the Department of Agriculture at the Exhibition Grounds, Victoria, B.C., from October 6th, 1916, to October 4th, 1917, extending over 12 months.

## SUMMARY OF RESULTS

Duration of contest (months).....	12
No. of pens.....	40
"    birds.....	240
"    eggs laid.....	38,360
Value of eggs laid.....	\$1,310.63c
Average monthly revenue.....	\$1,310.63c
Average monthly revenue.....	\$109.21c
Cost of feeding.....	\$611.05
Average monthly feed cost.....	\$ 50.92
Profit over cost of feeding.....	\$ 699.58
Average price of eggs per dozen.....	41c
Highest price received per dozen (Oct. 9).....	.60c
Lowest price received per dozen (Mar. 12).....	.30c
Average cost to produce dozen eggs.....	19.1c
Average number of eggs paid per pen.....	959
Average number of eggs laid per bird.....	159.8
Average cost of food per pen (6 birds).....	\$15.27
Average cost of food per bird.....	\$ 2.54
Profit over cost of feed per pen.....	\$ 18.48
Profit over cost of feed per bird.....	\$ 2.91
Eggs laid by winning pen, class one, (light weight).....	1,193
Average per bird winning pen, class one.....	198.8
Eggs laid by winning pen, class two (heavy weight).....	1,188
Average per bird winning pen, class two.....	198

In class one White Leghorns were first, second, and third in the awards. In class two White Wyandottes were first and second and Rhode Island Whites third.

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As to the debated question of whether or not the introduction of school garden and nature work interfered with the progress of pupils in other studies, I can say most decidedly from my own experience that it does not. On the contrary by correlating it with the other studies, the interest awakened, the information gained, the better school attendance all tend directly to better scholarship.—A New Brunswick Teacher.

## NOVA SCOTIA

### POULTRY WORK UNDER THE AGRICULTURAL INSTRUCTION ACT

BY J. W. MITCHELL, B.A., ASSISTANT COMMISSIONER, THE AGRICULTURAL INSTRUCTION ACT FOR THE MARITIME PROVINCES

FROM the grant to Nova Scotia, under THE AGRICULTURAL INSTRUCTION ACT, there is an allotment of \$1,500.00 for poultry work for the current year. This is used, mainly, for the following purposes:—

1. Expenses of the poultry expert, Mr. J. P. Landry, in connection with field work.
2. Erection of demonstration poultry houses.
3. Egg club or circles work.

Already, about thirty meetings have been held in different parts of the province, at which various phases of the poultry work have been taken up, such as the care, feeding and management of poultry, the home production of suitable poultry foods, the production, care and marketing of eggs, and the building of poultry houses. Lantern slides are frequently used in the lecture work.

#### WORK OF THE PROVINCIAL DEPARTMENT

It has been the practice of the provincial Department of Agriculture to erect a few demonstration poultry houses each year at carefully selected central points, the farmers chosen to secure these being those who take an interest in poultry and are sufficiently public spirited to do a little missionary work. The cost of erecting such a house—one suitable for the average farmer—ranges from \$100.00 to \$150.00. Already about thirty demonstration houses have been built in the province—six of them during 1917. On a recent visit to Bridgetown, in the Annapolis Valley, I was informed by the owner

of one of these houses, put up this year, that six farmers in that locality have, as a result, built poultry houses modelled after his, and that several others purpose doing the same thing in the near future. Mr. Landry informed me that similar results have been secured at other points.

#### EGG CLUBS OR CIRCLES FORMED

Egg clubs or circles for the collecting and marketing of eggs, have been formed at three different points in the province—Pugwash Jct., Bridgetown, and Margaree Forks (C.B.). The Department of Agriculture has not been pressing the formation of these circles, but rather has been giving the farmers the necessary information, and then leaving it to them to move in the matter themselves, and directing them along right lines where they decide to organize. It is in outlying districts, where eggs cannot be marketed advantageously during the early months of the season, that egg circles serve the most useful purpose.

#### MARKETING THE EGGS

The eggs are not marketed at the time they are collected, but are put in a water-glass solution, in a cement tank in a cellar or basement, and are marketed largely during November and December. Most of the eggs stored at the points mentioned were collected during the months of April to July inclusive.

The quantities collected at the different stations during the past season were, approximately, as follows:—

POINTS	EGGS COLLECTED, Dozen
Pugwash Jct. ....	7,000
Bridgetown. ....	5,000
Margaree Forks. ....	3,000

The Department defrays the expense of putting in the first tank. The members of the circle are instructed to supply unfertilized eggs only, to gather them daily and to keep them in a suitable place until collected. The eggs are collected weekly, a suitable man being engaged to do the work of collecting, candling, sorting, caring for and shipping them. The cost of this phase of the work is approximately 5c per dozen. Mr. Landry, co-operating with the directors, undertakes the general supervision and direction of the work and the marketing of the eggs. He estimates that the eggs will, this year, sell at an average price of close to 45c per dozen, delivered, and will net the farmers about 10c per dozen more than they would have received under the conditions that existed before the circles were formed.

At Margaree Forks, where there is a creamery operated under the Dairy

Branch of the Department, the eggs are collected by the cream collectors, and are cared for and shipped by the creamery manager.

#### ADVANTAGES OF THE EGG CIRCLE

The advantages of the egg circles work in the province may be summed up as follows:—

1. It is educational, and educational in a practical way.

2. It serves as a stimulus to the members to do better work, as regards both quality and quantity of product. The increase in the price secured demonstrates the advantages to be derived from the production of eggs of high quality, the proper care of them until marketed, and the marketing of them under right conditions.

3. It develops a spirit of co-operation—co-operation amongst the farmers themselves and between them and the Department of Agriculture, not only in this but in other phases of their work.

One thing that militates against the development of the poultry industry in the province is the fact that much of the food for poultry has to be imported. This will, no doubt, remedy itself, in part at least, as time goes by.

## NEW BRUNSWICK

### HOW THE SHEEP CAMPAIGN WAS HANDLED

BY W. R. REEK, SECRETARY FOR AGRICULTURE

**I**N New Brunswick, as in most of the other provinces, sheep have been decreasing in numbers for many years. On investigation it was found that most of those who had gone out of the sheep business claimed that it was on account of the havoc caused by dogs. There was a law on the statutes regarding dogs and sheep, but this was often unworkable, as it took fewer people to repeal than it did to put it in force. Hon. J. F. Tweeddale, Minister of Agriculture for New Brunswick, saw this, and he succeeded in getting parts of it repealed, so that the law could be put in action by a petition to be

signed by a small number of taxpayers. With this accomplished, it was felt that the great obstacle to successful sheep raising had been overcome, but Hon. J. F. Tweeddale did not stop here; he instructed the Department of Agriculture to give the farmers all the assistance they could, to enable the farmers who had no sheep to establish flocks, and those who had to improve theirs by bringing in new blood.

#### STEPS TO INCREASE BREEDING

In consideration of the high prices paid for mutton and wool, the fact



that these prices were likely to remain so for many years, and the big crop of hay throughout the province, with, consequently, its relative low price, the Live Stock Division of the Department of Agriculture placed these facts before the farmers and advised those who did not keep sheep that the present was the best time to start.

Many of the farmers found upon looking around for available stock as a foundation of a flock that it was impossible for them to obtain the same at a reasonable figure, as nearly all the local breeders who had ewes or ewe lambs wanted them to increase or replenish their own flocks, which had in most cases been allowed to decrease in both quantity and quality.

Notice of these conditions came to the attention of the Live Stock Division of the Department of Agriculture, and they at once made plans to enable the farmers to obtain good stock at a reasonable price.

#### SEARCH FOR EWES

They communicated with most of the large sheep breeders and butchers in New Brunswick, and also with the District Representatives of the counties of Nova Scotia where sheep raising is carried on quite extensively, requesting prices on breeding ewes and ewe lambs. The answer they received, in most cases, was that mature breeding ewes were not to be had and that ewe lambs, ranging from 75 to 95 pounds in weight, when available, were priced at from \$9.50 to \$10.50 f.o.b. their respective shipping points. To this price was added the freight and a few incidental charges for care, feeding and in some cases crating, and it was figured that the ewe lambs would range from \$10.50 to \$11.50, according to size and quality. The Department also received prices from most of the breeders in the Maritime Provinces and Quebec on pure-breds, both male and female,

which were quoted at \$20 to \$25 for lambs and \$25 to \$40 for older sheep. The Department in turn, through the medium of the newspapers, quoted these prices to the farmers, along with an offer to secure sheep and distribute them at cost. It was also made imperative that each order was to be accompanied with a cash deposit of 50% of the approximate amount of the order, and that the remainder was to be paid on the arrival of the sheep at the central point of distribution, Fredericton.

#### THE EFFORT EFFECTIVE

The farmers readily took advantage of this offer, and orders for a large number of sheep were received. As many sheep as possible, both grades and pure-breds, were secured in the province. In this way breeders were aided in disposing of their surplus and freight rates were reduced. The supply, however, rapidly diminished, and it became necessary to import from Nova Scotia, Quebec and Prince Edward Island.

In orders of one or two sheep, these were shipped direct from the breeder to the buyer, but in the majority of cases they were shipped in carload lots to a central point where they were watered, fed, and given a few days rest before being consigned to their various destinations.

Great care was exercised throughout to get only well-matured, healthy stock, which had the characteristics of the breed they represented, and in the case of grades, they were mostly of Shropshire and Oxford breeding.

During the months of October and November, nearly 1200 sheep were handled by the foregoing methods and, although the number was not great, considering the possibilities New Brunswick has for sheep raising, it started nearly 100 flocks, and acted as a stimulus to that branch of live stock which has been sadly neglected.

# QUEBEC

## DEMONSTRATION POULTRY HOUSES MACDONALD COLLEGE

BY A. G. TAYLOR, B.S.A., ASSISTANT POULTRY DEPARTMENT

**D**URING the fall of 1913 the Poultry Department of Macdonald College, undertook out of funds derived under THE AGRICULTURAL INSTRUCTION ACT, to demonstrate to the farmers in various sections of the province what they considered to be some of the best types of poultry house for the farm. The object in view was to show the farmers in each locality what one of their neighbours could do when conditions

of Missisquoi; Mr. E. N. Chaddock (Cookshire), in the county of Compton. These men were chosen by the college because of their keen interest in agricultural advancement. Each location is suitable for poultry work and, in addition, the poultry house could be constructed near the public road. The houses in Compton and Rouville counties are of the Macdonald type, while those in Missisquoi and Pontiac counties are



DEMONSTRATION HOUSE AT YARM AND COWANSVILLE, QUE.

were favourable for successful poultry keeping. In each locality chosen a poultry house was constructed according to instructions. These houses were built in such a way as to accommodate the entire flock in one pen, thus keeping down cost of construction and reducing labour to a minimum. Special attention was given to light and ventilation, as these features are of paramount importance.

The farmers chosen to carry on this work were: Mr. Bert Hodgins, (Yarm), in the county of Pontiac; Mr. Edgar B. Standish (Rougemont), in the county of Rouville; Mr. W. R. Beach (Cowanville), in the county

of the Tolman type.

The cost of these houses varied slightly, due largely to the price of building materials locally. Owing to the fact that most of the construction work was done by the farmer himself no account is given for labour. Had the time employed in the construction work been in the farmer's busy time an account could have been given, but as he used spare time no account was kept. The actual cost of the material purchased is as follows: Pontiac house, \$72.88; Rouville house \$128.55; Missisquoi house, \$110.98; Compton house, \$109.55. The house in Rouville county is 18 by 20 feet,

and the remaining three houses are 20 by 20 feet. The larger houses accommodate 100 hens each, while the smaller structure provides ample room for about 75 birds.

In the fall of 1913 each farmer was supplied with Barred Plymouth Rock pullets at \$1.50 each. Male birds for breeding purposes were supplied annually by the Poultry Department. Each farmer kept an account of all business transacted for three years, and filled in a monthly statement, which was forwarded to the College at the end of each month. The number of eggs laid

was recorded on the report sheet, and the grain used was also recorded regularly. Labour was charged up at 15c per hour, and the flock was given credit for all the eggs laid, whether sold or used on the farmer's table. Poultry sold was also put on the credit side of the report. Eggs used for hatching were charged up at 10c each and 25c was allowed for each chicken hatched. Losses, whether chicks or hens, were charged up at their actual value.

The following is a report of the results thus obtained:—



DEMONSTRATION HOUSE AT COOKSHIRE AND ROUGEMONT, QUE

Pontiac house (100) hens:—

Stock on hand, Oct. 15, '16, when test was concluded.....	\$371.80	
Stock on hand Oct. 15, '13, when test was commenced.....	150.00	
Profit from increase in stock .....		\$221.80
Loss for year 1913-14.....	\$ 80.61	
Profit for year 1914-15.....	74.72	
“ “ 1915-16.....	84.66	
Profit.....		\$ 78.77
Value of labour, 1913-14.....	\$ 46.03	
“ “ 1914-15.....	58.81	
“ “ 1915-16.....	50.39	
		\$155.23
Total profit not counting labour.....		\$455.80

Rouville house (75 hens):—

Stock on hand Oct. 15, '16, when test was concluded.....	\$139.30	
Stock on hand Oct. 15, '13, when test was commenced.....	112.50	
Profit from increase in stock.....		\$ 26.80

Profit for year 1913-14.....	\$42.83	
“ “ 1914-15.....	50.89	
“ “ 1915-16.....	118.07	
		\$211.79
Value of labour, 1913-14.....	\$ 38.63	
“ “ 1914-15.....	36.00	
“ “ 1915-16.....	37.80	
		\$112.43
Total profit not counting labour.....		\$351.02
Missisquoi house (100 hens):—		
Stock on hand Oct. 15, '16, when test was concluded.....	\$135.00	
Stock on hand Oct. 15, '13, when test was commenced.....	150.00	
Loss from decrease in stock.....		\$ 15.00
Profit for year 1913-14.....	\$ 10.43	
“ “ 1914-15.....	53.67	
“ “ 1915-16.....	18.43	
		\$ 82.53
Value of labour, 1913-14.....	\$ 49.55	
“ “ 1914-15.....	54.00	
“ “ 1915-16.....	57.00	
		\$160.55
Total profit not counting labour.....		\$228.08
Cookshire house (100 hens):—		
Stock on hand Oct. 15, '16, when test was concluded.....	\$ 52.50	
Stock on hand Oct. 15, '13, when test was commenced.....	150.00	
Loss from decrease in stock.....		\$ 97.50
Profit for year 1913-14.....	\$ 24.51	
“ “ 1914-15.....	79.89	
Loss for year 1915-16.....	28.60	
		\$ 75.80
Value of labour, 1913-14.....	\$ 55.65	
“ “ 1914-15.....	54.95	
“ “ 1915-16.....	47.40	
		\$158.00
Total profit not counting labour.....		\$136.30

These houses have given universal satisfaction; they are easily operated and although cheap serve the purpose well. They admit of an abundance of fresh air and are comparatively dry. Egg production has been exceptionally good, and has increased each year. One farmer has succeeded in obtaining as high as 43 per cent egg yield during the winter months. The increase in the number of poultry raised has also been very marked, one farmer raising 300 chickens during the summer of 1916. The quality of the flocks has also improved considerably, and these farmers are now possessors of flocks

of Barred Plymouth Rock fowls that are not only a credit to themselves but are an asset to the poultry industry. These flocks are looked upon by their respective communities as foundation stock in utility poultry breeding.

The influence these demonstration houses have had on poultry house construction is very favourable indeed. A number of new poultry houses have been built along the same lines, and the increased demand for information on poultry houses is, to say the least, a good omen.



## ONTARIO

### THE AGRICULTURAL SCHOOL, KEMPTVILLE—SHORT COURSES AND SEED FAIR

**M**R. W. J. BELL, Principal of the Agricultural School at Kemptville, announces that his school will begin its career as a teaching institution in the month of January. For four days, from January 22nd to 25th, a general short course will be given embracing all branches of agriculture suitable for Eastern Ontario. Federal and provincial officials will have charge of the classes.

#### INTER-COUNTY JUDGING COMPETITION

On account of the withdrawal of the Eastern Ontario winter fair, two of the usual features of that exhibition will be held at Kemptville. Within the period of the short courses the Inter-County Judging Competition for counties east of Northumberland will take place. This will involve teams of three

junior farmers from each county trained by the respective District Representatives. The competition for Western Canada was held at the Ontario Winter Fair at Guelph, when the team from York County was successful. After the eastern competition has been held, the winning teams from the east and the west will be brought together at the Toronto Stock Yards for a final test.

#### EASTERN ONTARIO SEED FAIR

The annual fair held by the Eastern Ontario Seed Growers' Association will take place at Kemptville during the four days of the short course, when the usual sale of seed will be carried out. In connection with the show there will be available to visitors a directory of farmers in eastern Ontario who have seed grain for sale, and with it samples what may be purchased.

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## MANITOBA

### INCREASED PRODUCTION OF LIVE STOCK

**A**T a conference representing the Agricultural Societies, the Grain Growers' Associations, the Live Stock and Dairymen's Associations, the Home Economics Society and the Boys' and Girls' Clubs, a resolution was passed pledging the members to do their utmost to present the existing situation to the whole people, and to secure united action in increased live stock production and food production generally. Resolutions were also passed recommending the registration and

organization of all labour resources; commending the action of the Dominion Government in establishing a Feeds Branch; commending the banks for their policy in helping members of boys' and girls' clubs to buy feeding stock; requesting that municipal and town and village councils make it feasible for residents of towns and villages to raise and feed pigs or other live stock; calling upon municipal councils, grain growers, agricultural societies, banks, railways and all other available agencies to

work in the interests of increased hog production; pledging the delegates to the conference to present the needs to their own districts and to assist in organization; asking the ministers of all churches to preach

a sermon on food production, and approving the appointment of Mr. H. S. Arkell as Live Stock Commissioner for Canada and Mr. J. D. McGregor as Food Controller for the Western Provinces.

## SASKATCHEWAN

### AGRICULTURAL CONVENTION AND SEED FAIR

**A**GRICULTURALLY speaking, Saskatchewan is going to be very busy during January. From the 8th to the 11th, the agricultural societies meet in convention at Saskatoon. During the same period the annual seed fair will be held. The Dairymen's annual convention will be held on Jan. 9th and 10th. From January 14th to 26th, there are to be short courses in agriculture at the Agricultural College. At the Seed Fair, prizes are offered in fifty-six classes. Any farmer in Saskatchewan is eligible as an exhibitor. All exhibits must have been grown in the province during 1917. Classes 1 to 37 are open to any exhibitor. Classes 38 to 54 are open only to members of the Canadian Seed Growers' Association. Each exhibit in the seed classes 1 to 37 must be as follows: Wheat, 75 lb.; oats, 50 lb.; barley, 60 lb.; flax, 70 lb.; peas, 75 lb.; potatoes, 60 lb.; grass seed, 10 lb.; clover or alfalfa seed, 5 lb.; corn 10 ears. Besides the money

prizes, which run from \$20 down, a number of special prizes will be offered such as the "Farm Crops" trophy, the Millers' Cup and the Mooney Challenge Shield. Special competitions for boys and girls between the ages of 12 and 18 years will be held. The exhibits must consist of a sheaf of wheat and oats sufficient to make a compact sheaf 6 inches in diameter, the plants to have been selected by hand from the standing crop, and to show the full length of the straw. In addition to this sheaf, a gallon of fresh grain from the same field or plot is called for. By way of encouragement to the growers of registered seed in Saskatchewan transportation charges over \$2 will be remitted on all Seed Grain Associations' exhibits that have been shipped by freight prepaid at least two weeks prior to date on which the fair opens. S. E. Greenway, Director of Extension work College of Agriculture, Saskatoon, is the Secretary.

### PROGRESS OF THE CO-OPERATIVE MOVEMENT

BY W. E. H. STOKES, EDITOR "PUBLIC SERVICE MONTHLY"

**I**T is a significant fact that the very first recommendation of the Agricultural Credits Commission was to the effect that co-operative legislation should be passed, and that such information and guidance should be given by the provincial Government as would facilitate the formation on a sound basis of

local co-operative societies for purchasing and selling farm products and supplies. The adoption of this recommendation gave the initial stimulus to the whole movement, and, in consequence of it, the Co-operative Organization branch was added to the Department of Agriculture, and The Co-operative Asso-

ciations Act passed at the session of 1913.

### THE BEGINNING

Prior to this time there had been a growing feeling of unrest amongst the farmers, and a rapidly increasing desire to escape from the exactions of the middlemen. The members of the Saskatchewan Grain Growers' Association in various localities had demonstrated what could be done by co-operation. These enterprises were always merely local, and were never carried on by the central office of that organization. But these associations had no legal standing, and consequently each member was individually liable for any debts contracted. There were two objections to registering under the Companies Act. If this were done the control would rest with the largest shareholder, and the profits would be divided on the same basis. Secondly, the minimum incorporation fee was \$40, and the whole paid up capital of more than one of the associations amounted to very little more, although they had a turnover of thousands of dollars. When the Act referred to was passed these disabilities were dealt with. The control of one association is absolutely democratic, being based on the principle of "one man, one vote," regardless of the number of shares held, while the profits depend on the amount of patronage extended. Thus the man with only one share doing the greater part of his business through his association receives more than the man with fifty shares who deals elsewhere. The associations were registered for a fee of \$4.50, and for this sum obtain proper legal standing, while the liability of each member is limited.

### PUSHING THE MOVEMENT ALONG

When the Co-operative Organizations Branch was established informative literature was issued and addresses delivered at farmers' con-

ventions and elsewhere, in order to place the matter squarely before the people. The advantages that might accrue were not unduly urged or thrust upon the farmers, but whenever, and wherever, a community of farmers showed a desire to take advantage of the legislation provided, advice and practical assistance were tendered. Bylaws were suggested, different lines of work were indicated, showing the degree of success which might be anticipated, men were sent to assist in the first co-operative shipment of live stock, the difficult matter of co-operative accounting was provided for by supplying forms which the experience of other countries had shown to be simplest and best. In short, every precaution was taken to see that the association was started right.

### AN EXAMPLE

Of the two lines of co-operative work, purchasing and selling, it is in selling that the farmer has saved most money by the adoption of co-operation. The records of one of the associations show that coal was bought at \$1.85 per ton less than the prevailing local price; cordwood was procured at 60 cents per cord less; lumber at a reduction of \$7.00 per thousand; shingles at \$1.00 per thousand less. A long list of other commodities might be quoted showing where great savings have been made.

### THE CO-OPERATIVE ACT AMENDED

An important amendment to the Act was made in 1916. Formerly all transactions of the associations had to be in cash only. This was done to prevent them from falling into the hands of a creditor who might be antagonistic, and who might, by pressing for a payment at an inopportune time, seriously embarrass a struggling association or even put it out of business altogether. Therefore, the law was amended to permit associations to purchase on credit



from other associations having similar objects. Since this amendment the central office of the S.G.G.A. has acted as purchasing agent for the associations, and there is co-operation not only amongst individual members but amongst the associations themselves.

In only one aspect is Saskatchewan reported to be lagging behind as regards co-operation, and that is in co-operative production. There is one co-operative farm where owners and employees work on shares,

while there are only two cases of community breeding, one in horses and the other in cattle breeding. It is thought this is because of the scattered nature of the settlement of the province and the pioneer conditions which still prevail over a large section.

#### PROGRESSIVE STATISTICS

The following comparative figures will show the gratifying progress which has been made:—

	1915	1916	1917
Associations reporting.....	102	173	309
Number of shareholders.....	2,850	5,537	9,444
Paid up Capital.....	\$13,494.20	\$39,421.49	\$92,940.27
Assets.....	\$37,337.53	\$105,322.37	\$295,012.40
Liabilities including paid up capital.....	\$29,717.33	\$82,956.57	\$232,938.81
Associations handling supplies.....	70	138	308
Value of supplies handled.....	\$239,320.42	\$805,456.88	\$1,984,545.85
Associations marketing live stock.....	9	10	23
Value of live stock marketed.....	\$42,034.22	\$150,512.76	\$32,171.25
Other farm produce marketed.....		8,923.03	15,115.80
Total turn over.....	281,354.64	964,892.67	2,122,832.90

In the interval from May 1st, 1917, to the present time the number of associations registered has risen to 367.

### THE CO-OPERATIVE MARKETING OF LIVE STOCK

WITH a view to encouraging co-operative live stock marketing, the Co-operative Organization Branch of the Saskatchewan Department of Agriculture announces that after January 1st that Branch will send on application a representative to assist the manager of any co-operative

association in the receiving, forwarding and marketing of the first co-operative shipment of live stock. The Branch is also prepared to furnish free a set of live stock marketing receipt and account forms sufficient to record one years' marketing transactions.

## ALBERTA

### THE COW BILL

BY J. MCCAIG, EDITOR OF PUBLICATIONS

THE so-called Cow Bill enacted in the last legislature of the Province of Alberta under the special direction of Hon. Duncan Marshall, appears to be what was

needed. Since May 10th, 172 loans have been guaranteed by the Treasury Department and totalling \$384,750. The applications are distributed pretty well over the province,



but are distinctly few in the grain-growing sections of the south and numerous in the newer districts where mixed farming is the system followed. Peace River, St. Paul de Metis and Coronation seem to be the centres where associations are thickest, and these are all undergoing rapid settlement at present.

The effect of the bill will be to

give to many enterprises, which otherwise would be poor for a long time, a permanency and stability that will be the making and saving of many struggling homesteaders and their families. The Act is simple in its scope and simple in operation, and appears to have been conceived with a close sense of country needs.

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## BRITISH COLUMBIA

### EXHIBITS OF PLANT DISEASES AND INSECT PESTS

BY J. W. EASTHAM, PLANT PATHOLOGIST

EXHIBITS of plant diseases and insect pests which were shown at one or two of the fairs last year, were this year displayed at a considerably larger number of centres. These were Duncan and Victoria on Vancouver Island; Coquitlam and Langley on the Lower Mainland; Kelowna, Grand Forks, Nelson and Summerland in the Interior. The exhibits consisted principally of Riker mounts, these affording the most convenient means of shipping and arranging such an exhibit. Each mount included specimens of attacked plants or parts of plants prepared to show the symptoms by which the infestation can be recognized and distinguished from those resembling it. In the case of superficial diseases of fruits and tubers, the scraping out of the soft tissue from beneath the skin and replacing it with plaster of Paris has made very satisfactory mounts. They retain their colour and natural appearance well. They also bear handling, and can be placed in a Riker mount with the other material illustrating a particular disease, thus avoiding the division of related specimens, and the risk of transit with preparations mounted in liquid preservatives.

The life history of the fungus or insect pest was shown as fully as space permitted in a type-written legend, further reference being made to the publications of the Department.

The exhibit was made, as far as possible, to meet the needs of the locality. Diseases or pests of general distribution, like Potato Scab and Woolly Aphis, formed part of each exhibit, while those, like Fire Blight and Anthracno, confined to certain of apple sections, were only shown where they would be of interest. At the same time an effort was made to give prominence to those which are at present only found in certain areas of the province, but which are quite likely to spread to other points or to be introduced from outside sources, e.g., Codlin Moth and Powdery Scab of Potatoes, in order that growers should be able to recognize them at once should they appear, and take proper steps for their suppression.

In most cases Mr. Ruhmann or myself remained in charge of the exhibit during the hours of the fair to give further information. At most centres much interest was shown, and the number of inquiries large.

## PART III

# Rural Science

### RURAL SCHOOL FAIRS

#### PRINCE EDWARD ISLAND

BY W. J. REID, B.S.A., DIRECTOR OF AGRICULTURAL INSTRUCTION

THE school fair movement is practically a new venture in this province, as this is only its second season. The school fair as an important factor in connection with the successful teaching of rural science has been recognized by the inspectors, teachers and pupils, and of the ratepayers who have been

made by a few of the inspectors to introduce the movement, and four fairs were held. Although the plans had not been laid very long before hand, the teachers and pupils entered into the scheme whole heartedly and the success attained was sufficient to stimulate all who had taken part to greater effort for 1917. The



PARTIAL VIEW OF BICYCLE PARADE, CHARLOTTETOWN, P.E.I.

privileged to attend any of the fairs held in the province during the past season.

#### THE EXTENT OF THE MOVEMENT

In the fall of 1916 an attempt was

enthusiasm spread to other inspectors and teachers, and we find last year fourteen school fairs for the province held in the following centres: Tyne Valley, Central Bedeque, Kin-kora, Crapaud, Charlottetown, Hills-

boro, Mount Stewart, New Perth, Montague, Sturgeon, Murray Harbour, Heatherdale, Uigg and Eldon.

### ORGANIZATION

The chief aim of the school fair, namely, "To produce better educated boys and girls," has been kept in view, and as much of the executive work as possible has been placed in their hands.

Early in the spring of 1917 a circular on School Fairs was issued by the Rural Science Department of the Prince of Wales College and sent to the inspectors and teachers. The

on a somewhat uniform basis. The value of the training in executive work is a great factor in the educational advantages in connection with school fairs. Most of the pupils have received their first training in executive work, and it was marvellous to see the system with which the work was carried out. That the pupils recognize the benefits themselves is proven by the fact that they continually strive to improve upon what has gone before.

### ASSISTANCE LENT TO FAIR CENTRES

The School Fair circular contained



SCHOOL FAIR EXECUTIVES (TEACHER AND THREE PUPILS FROM EACH SCHOOL),  
TYNE VALLEY, P.E.I.

circular contained among other things suggestions for organization and a specimen prize list with the following note as a preface.—

The following prize list is quite a comprehensive one and is intended to serve as a suggestive medium rather than as one to be directly followed. At the first or subsequent meeting of your Central Fair committee a definite prize list following the suggestions here given should be made out to be used for your school fair. The making out of a suitable prize list will in itself give considerable training to the committee.

With these suggestions the general scheme for the province was placed

the following offer of assistance to all fair centres:—

The Department of Agriculture and Education will give assistance (whenever requested) on the day of the fair to assist with the judging. Printed prize ribbons for the sports and entry forms and prize tickets for the exhibits will be supplied free to any school fair board making application to the Rural Science Department, Prince of Wales College, upon condition that they forward to this Department a report of their fair in the fall.

It would be advisable that fair boards notify the Rural Science Department of the date chosen for their fair at their earliest convenience to prevent conflicting dates, so that judges may be supplied with least difficulty.



This was taken advantage of by all the fair centres, and a line of correspondence was then set up between the secretary of the fair and the rural science Department. The following assisted with the judging: The members of the Provincial Department of Agriculture; Mr. Clark, Superintendent of the Experimental Farm; Mr. Shaw, Superintendent of Education; Miss Dutcher, Instructor in Domestic Science, Prince of Wales College; Mr. Barlow, Instructor in Manual Training and Drawing, Prince of Wales College; the Inspectors; and in some cases local people lent assistance.

each school. At Central Bedeque the pupils from the different schools marched in procession lined up in front of the hall, where each school sang its respective patriotic song, and all joined in "The Maple Leaf Forever." At Crapaud a special feature was inter-school basketball, which proved very exciting. At Charlottetown the pupils had a bicycle parade in which at least 100 prettily decorated bicycles filed past the judges. At New Perth the boys, to make the fair more realistic, introduced the old time "wheel of fortune," by means of which the unsuspecting public were separated from their



PRIZE CALVES EXHIBITED IN BANKERS' COMPETITION AT KINKERA, P.E.I.

At centres where successful fairs were held last year prizes were awarded for calves and pigs by the Bankers' Association. This we hope will play a greater part in our scheme for 1918.

#### SPECIAL FEATURES

Each fair committee showed sufficient initiative to introduce special features as a part of their programme. Tyne Valley had a school competition for the best decorated wagon used to convey the pupils to the fair. This proved very exciting, and brought out the loyal supporters for

"nickels."

The following is part of a report sent in by one of the boy secretaries:—

#### REPORT OF SCHOOL FAIR

The schools which were included in the fair held at the Macdonald Consolidated School were as follows: Alexandra, Cross Roads, Bunbury, Mt. Herbert and Hazelbrook.

The names of the officers in charge of the fair, were: Mildred Ballem, Cross Roads; president; Mildred Mutch, Mt. Herbert, Vice-president; George McKinnon, Alexandra, secretary; William Monaghan, Mt. Herbert, treasurer.

There were four prizes given to each section in the respective classes. The



amount of each was, 1st prize, 45c.; 2nd prize, 35c.; 3rd prize, 25c. and 4th prize, 15c.

The prizes for class 10, Sec. 1, which was best, Halter-broken colts, were double of those of the sections included in the other classes.

Funds for prizes were raised by canvassing the rate-payers of the school districts included in the fair, and the serving of refreshments on the day of the fair.

(Signed) GEORGE L. MACKINNON,  
Secretary.

### EDUCATIONAL VALUE

In speaking of the value of the school fair, two inspectors write as follows:—

The school fair stimulates a strong community spirit among old and young, and broadens the usefulness of the schools, especially in agricultural work. It brings together parents, teachers and pupils, and in that matter alone serves an important purpose. It is to the school children what the provincial and county exhibitions are

to the adults; it creates among the pupils a friendly competition, encourages them to study agriculture and to take an interest in "home projects." In carrying out a school fair the boys and girls receive a training in organization, management and in the fundamental value of co-operation, which must inevitably have a far-reaching result in equipping them for action and useful citizenship.

(Signed) D. S. FRASER.

The activity and interest taken by the teachers in the schools which have participated thus far deserve more than ordinary recognition, for while the management is nominally in the hands of the pupils the stimulation and discretion of their efforts have their base in the teachers' underlying devotedness to its success.

As to the value of holding school fairs, I am not sceptical. In addition to their importance in an agricultural sense, their organization affords opportunities for business training and a recognition of the principles which go to make square dealing with each other.

(Signed) J. F. DOYLE.

## NOVA SCOTIA

L. A. DEWOLFE, DIRECTOR OF RURAL SCIENCE SCHOOLS

THE school fairs showed a marked improvement last year. Not only did the number increase, but the quality of the exhibits was away beyond that of previous years. I attribute this improvement largely to awakened interest on the part of the parents.

The parents pay little attention to the child's first efforts. When a small amount of the prize-money arrives, however, the parents realize what is doing, and take a hand in the matter themselves. The small successes of 1916, therefore, brought the parents' assistance in the selection of exhibits in 1917. Reasoning thus, I anticipate still greater improvement this year.

Last year 55 schools sent rural science exhibits to the Provincial Exhibition; 60 to the County Exhibition; and 70 exhibited locally. Deducting those who exhibited at more than one place, 160 different schools exhibited their produce last

year. That is about 6% of the schools in the province. This is small, but it is a start.

### PRIZE FUNDS

The prize money contributors were as follows:—

Provincial Exhibition Commission, Halifax.....	\$150
Various County Exhibition Commissions.....	100
Local contributions for local exhibitions.....	700
Government grants (to counties and locally).....	220
Total.....	\$1,170

Notable among the local exhibitions were three towns which made their first attempt last year. They raised their money by door receipts, sale of candy, and by private subscriptions. They were:—

Westville.....	\$84
Glace Bay.....	75
Stellarton.....	70

The best district exhibitions were at Tatamagouche, Lawrencetown and Bridgetown.

In several cases no prize-money was paid. Instead, the receipts were given to the Red Cross; and the children were awarded cards or ribbons.

As usual the Women's Institutes and Women's Council gave assistance. The officials of the county and provincial exhibitions co-operated in every way possible.

#### THE FUTURE

From our future rural science prize lists for county and provincial

exhibitions we are eliminating pressed plants and general collections of insects, minerals, etc. We are retaining weeds, fodder plants, economic insects, etc. In other words, we are admitting only those things which have a bearing on the material prosperity of our people.

Pure nature work, which, in itself, is not economic, we are exhibiting with writing, drawing and kindred school subjects. We admit their value, but we are separating the productive and economic exhibits from the purely so-called educational ones. The former, we call rural science, the latter is classed as general education.

### NEW BRUNSWICK

BY R. P. STEEVES, B.A., DIRECTOR, ELEMENTARY AGRICULTURAL EDUCATION

OUR school fair work the past year registered a distinct advance on the success achieved last year. The large numbers that attended, and the readiness with which school officers and citizens helped to finance the movement bespeak the interest taken in this phase of rural improvement.

All the fairs were held in districts where a garden at school has been established and successfully used as a feature of school work.

The earnestness and enthusiasm with which teachers have supported and encouraged fair work shows that they consider it of great advantage in their teaching.

Products grown on central and home plots, as well as those from the school garden may be exhibited. The only restriction is that exhibits must positively represent the work of the exhibitor, and be connected with school instruction. In accordance with this idea each pupil, before receiving his exhibit number, is required to sign a declaration to this effect, and the teacher also certifies to the correctness of the pupil's affirmation. We seek to give to the

teacher and the school a claim to the benefit resulting.

The Elementary Agricultural Education Division of the Department of Agriculture, with the co-operation of the Education Department, organized and conducted all the fairs. The Education Department by regulation permits teachers actually taking part in the fair work of their schools to take one half or the whole of a day from regular school work for this purpose.

#### EXHIBITORS AND EXHIBITS

Fourteen fairs participated in by 23 school districts were held. Over 1000 school children had exhibits. It is estimated that more than 3000 visitors attended. Most of the children had exhibits in two or three classes.

The classes of exhibits were as follows:—

1. Products of school garden and home plots.
2. Manual Training and Household Science work.
3. Collection of mounted plants, of mounted insects, of seeds.

4. Educational work including compositions, maps, drawings, charts, etc., having local or provincial reference.

5. Other home project work, chiefly poultry.

A feature of many of the fairs was the large number of exhibits of the same kind. At one fair, for example, thirty-five pupils exhibited beets. Competition was keen, and competent judges often had great difficulty in placing prizes.

Only small money prizes were awarded, our wish being to encourage the pupils to exert themselves

for the honour and distinction and for education, rather than for pecuniary advantage.

The exhibits of canned and preserved vegetables and fruits was much larger than in the previous year.

We had 87 gardens at school and 1502 home gardens conducted by children in the public schools. In addition there were several central plots, aggregating in area four acres. These also were cultivated by pupils in the public schools.

## QUEBEC

### MACDONALD COLLEGE

BY J. H. MCOUAT, ASSISTANT DEMONSTRATOR IN RURAL SCHOOLS

IN the month of September, twenty-one school fairs, in which Macdonald College co-operated, were carried through. These fairs were the result of a year's careful planning and foresight on the part of all those who took part and the fact that, in spite of the very backward season which obtained in the Eastern Townships and in Quebec generally, the fairs were a series of successes reflects credits where it belongs—on the children.

In 1916, 13 school fairs were held conjointly by Macdonald College and three provincial demonstrators. In 1917 that number was increased to 21, and, with scarcely an exception, each fair was larger. This shows that the movement is at least as popular as it has been and, in districts where four consecutive fairs have been held, it is a point worth noting. There were practically no new plans adopted for the season just passed over, those of the previous year being followed. The only change was where a somewhat loose, individual method of organization as regards determining the amount of materials needed and the distribution of these materials among the children was dropped and a definite and centralized method was followed. A strong feeling of co-operation has

sprung up among the demonstrators, and this is perhaps the key to the success of the fairs as a whole. With co-operation, foresight, insight and determination, the development and the success of any number of fairs is guaranteed.

### THINGS THAT ARE NECESSARY

A very important point in beginning a school fair is to win the interest of the children. One of the best things that one can do is to prove to them that he is interested and absolutely so. The children do more than half of their work during the summer, because they feel that some one is really in earnest about this matter, and that, therefore, they must do their part. It is hardly possible to visit the schools too often, to encourage the children in that way. The plan followed by the College and the provincial demonstrators is, where possible, to visit the schools in November or December and then pay the prizes won at the fair in September and encourage the children to continue their efforts, and to do even better than they have done. At this visit, too, the choice of seeds and other materials that are being distributed is outlined. The form to be filled in is then left with



the teacher, to be sent to the one in charge within a week. This gives the children an occasion to talk matters over with their parents. Even that arouses a greater interest.

When these lists have been gathered and the total amounts of material determined, the figures are given over to each department at the College, and individual packages or small sacks are labelled and filled.



A 10-YEAR OLD BOYS' DAY OF TRIUMPH

In the spring another visit is paid to each school, and every pupil, unless he is absent, in which case his material is left with the teacher, receives his material, together with a sheet of directions, *direct from* one whom he feels is interested that he should take good care of his chickens or his crop.

#### SUMMER DUTIES

Early in July, it is the aim that every child shall receive a copy of the prize list which outlines for him

everything he needs to know about his particular fair. From it he knows the prizes he is working for, and how he must prepare his exhibit.

During the latter half of July or during August every child should be visited. By that time he is beginning to realize better just why he is doing certain things, and he will likely have some difficulties that he would wish to have cleared up. Besides, and this is very important, every child likes to have the results of his hard work admired, and a word of praise from one whom he knows must know is ample payment for many, many hours of hard work. Certainly, a visit to the child's home during the summer-time is, not just to be recommended; it is absolutely necessary.

#### THE "BIG DAY"

On the day of the fair the building where the exhibits are displayed should, if at all possible, be quietly and tastefully decorated. The person who visits the children at their homes should be present, for, although all others may be strangers, the children feel that in him they have a friend. It is very desirable that plenty of opportunity be given to the people to talk to those in charge, because there are countless problems upon which they would like to have light. One feature for the children which should always be carried through is that a well-arranged programme of sports should be sent forward with a swing. A day's whole-hearted fun is what should be aimed at, for the children have done their work during the summer and now they are reaping their reward. To a large extent the success of next year's whole movement may depend on the quality of the happiness drawn from this year's "Big Day." All, large and small, are sure to have an interest in the exhibits, and this interest will only be made more keen by one or two hours of healthy sport.



It might be thought that it would be wise to pay the prizes the day of the fair and, while from one standpoint it would, yet by withholding the money for a month or a little more, the children's interest is extended over the whole year.

#### THE OBJECTS SOUGHT

The purpose of the school fair movement is not to create in the minds of the children a commercial spirit. If good seed is distributed solely that the country may in time be filled with it, and if no ideals are spread among the pupils, the good seed would not for very long be good. The two forms of seed are dependent one on the other. Since the war, however, our attention has been forcibly directed towards the greater production of foodstuffs, and because of our larger interest in obtaining food the quieter motive has been shadowed. Nevertheless, although we speak and write concerning this line of work almost wholly of the splendid results per pound, or per bushel, the other influence is at work, and the more it is the better are the results from a crop or material standpoint.

#### RESULTS

Because of the bad weather which prevailed in almost every district where school fairs were held, it would be very difficult to estimate even an average yield from the materials distributed. In some instances, scarcely the seed was obtained at harvesting, while in others an excellent yield was obtained. It would be true to say that, speaking for all the districts, the yield for all crops ranged from fair to good. To enable those who might wish to estimate a yield to do so, the amounts of the materials distributed are herewith submitted:—

Material to each pupil:	Total Quantity
Eggs—1 setting.....	658
Barley—1 lb.....	190
Ensilage corn— $\frac{1}{2}$ lb.....	115

Grain corn— $\frac{1}{2}$ lb.....	255
Oats—1 lb.....	285
Swedes—1 oz.....	340
Flowers—3 pkgs.....	1,025
Potatoes—8 lb.....	1,125
Sweet corn—1 pkg.....	560
Tomatoes—1 pkg.....	340

These figures totalled represent the number of children who received material last spring. There were 4,893. Whatever amount of crop was raised by them represents a clear increase over the amount that would have been raised had no seeds and



A SCHOOL FAIR EXHIBIT OF VEGETABLES

eggs been distributed, for almost all the work done on the plots was done in the child's spare time, or by children who would have otherwise been idle. Even though this amount of material were suited only for consumption, it would be by no means to be despised, but the chickens raised and the seed harvested are of such a superior quality that every farmer is proud to keep them separate

and make them the starting point of better stock or seed for his whole farm.

#### THE PARENTS PROFIT

Already several farmers have multiplied the little one pound sack of grain, or ten pound sack of potatoes, which his boy or girl received two or three years previously into several large sacks. One case in particular can be recalled where the small plot of oats had been increased to practically an acre, and that acre of oats was the best that had been seen among upwards of two hundred and fifty of our better farmers' crops. The crowning feature of this accomplishment was that the grain had been cared for *altogether* by the boy—a little lad only 10 years old when he got his little parcel of oats at the school two years previously. It is by multiplying instances such as this one and by encouraging the parents, who are really hungry for material assistance that they may be able to assist and educate their families further than they were assisted or educated, that the most real good will be done. If we can but inculcate into the minds of boys and girls of eight, nine, ten, twelve or fourteen years of age ideas concerning the growing of major crops which give excellent results, they will forget neither them nor us. What those in charge must do is to see that what they do is done fairly. If they do that the children will never fail them, and increased production will come and come in a much greater measure than if it alone is sought.

#### SEWING, CANNING AND COOKING

One phase of the school fairs which deserves space by itself and the

highest praise is that phase introduced by the School of Household Science of Macdonald College. The cooking and sewing exhibits at last year's fairs were splendid, and they served to balance the exhibits as a whole, interest the ladies, and cause many of the older girls to decide to take part the following year. All the work in this division was also done according to recipe and pattern, which increases its value. If no other line had been followed beyond explaining the canning process sufficient good would have been done by the ladies in charge. Hundreds of homes will be using canned fruit and vegetables this winter and next that were formerly strangers to such foods. This will mean a big saving of other foods, which is an inverted but important method of increasing production. The ladies deserve a great deal of credit,—more than will go to them because of their quiet ways of work.

#### THIS YEAR

For this year practically no new plans will be adopted. Better organization, a perfecting of the methods at present in use, and more co-operation are the three lines along which the work will be carried. Our aim will be to reach more children, and this can best be done by doing our work along familiar lines. Were new phases to be adopted, less could be accomplished. Therefore, while we feel and know that there are many places where we could enlarge and improve our methods and our results, yet we feel that, to do the most good to the greatest number, we shall be acting wisely by adhering to our old policy.

#### FRENCH SPEAKING COUNTIES

BY JEAN CHARLES MAGNAN, DIRECTOR OF SCHOOL GARDENS DURING THE YEAR 1917

**O**VER 80 rural school fairs were held during the year 1917 in the French Speaking counties of the province of Quebec.

Agricultural school fairs were or-

ganized last spring in 24 counties of the province, with the help of District Representatives and School Inspectors. A distribution of material and seed necessary for sowing

school and home gardens was carried this spring by the Horticultural Division. These consisted in a collection of seeds of vegetables, corn, swedes, potatoes, cereals, etc.

Grants were distributed to the school boards on this basis: A school board giving \$10, \$15 or \$20, received a grant of twice the amount. The average grant per county to

school boards organizing agricultural school fairs was \$80.

Products were exhibited at these fairs by nearly 115,000 school children. Children and parents were both greatly interested. It is no exaggeration to say that these fairs are a very important factor in agricultural progress.

## ONTARIO

BY R. S. DUNCAN, B.S.A., DISTRICT REPRESENTATIVE SUPERVISOR

**G**REAT Oaks from Little Acorns grow." The rural school fair idea originated in Waterloo county, in the year 1909, when the District Representative distributed seeds for a small home-garden plot to the pupils of three schools in North Dumfries township. That fall, the first school fair in Ontario, if not

The first fair was successful from every standpoint—the interest of the pupils was aroused and their thought stimulated; the teachers were heartily in favour of the development of the scheme; the trustees gave their undivided support and the parents voiced their sentiments in favour of the idea in no uncertain



JUDGING COLTS, CENTREVILLE, ONT., SCHOOL FAIR

in the Dominion, was held at the River Road school, near Galt, and augured well for the success and spread of the movement through the rural districts. This was a "Red Letter Day" long to be remembered by the writer, who was present and assisted in the management of the fair.

tones, and became enthusiastic concerning the new atmosphere which had been created in the district.

The movement has grown year by year, until in 1917 there are no less than 302 school fairs held in the province. One can gather some idea of the magnitude of the movement from the purchase and distribution



of the following seeds and eggs to the pupils during the spring of 1917:—

<i>Barley:</i> —		
O.A.C. 21,	64	bus.
<i>Oats:</i> —		
O.A.C. 72,		
O.A.C. 3,		
Orloff,		
Abundance,		
Industrial,		
Banner,	138	bus.
<i>Wheat:</i> —		
Marquis,		
Common Emmer,	23	bus.
<i>Sweet Corn:</i> —		
Golden Bantam,	26	bus. shelled

<i>Mangels:</i> —		
Yellow Leviathan,		
Bruce's Giant		
Our Ideal,		
Yellow Intermedi-		
ate,	5,850	packages
Mammoth Long		
Red,	5,850	packages
<i>Beets:</i> —		
Detroit Dark Red,	6,430	packages
<i>Carrots:</i> —		
Chantenay,	6,865	packages
<i>Parsnips:</i> —		
Hollow Crown,	2,840	packages
<i>Asters:</i> —		
Giant Comet,	9,110	packages
<i>Sweet Peas,</i>		
Giant Spencer,	4,180	packages



JUDGES AND WINNERS PARADE, VERSCHOYLE, ONT., SCHOOL FAIR

<i>Field Corn:</i> —		
Golden Glow,		
Salzer's,		
Bailey,		
White Cap,		
Wisconsin No. 7,		
Longfellow,		
Comptons,	43 1/2	bus. on the cob
<i>Field Peas:</i> —		
Arthur,	580	lb.
<i>Potatoes:</i> —		
Davies Warrior,		
Early Eureka,		
Green Mountain,		
Empire State,		
Delaware,		
Irish Cobbler,		
Carmen,		
Doolley's,		
White Star,		
Canadian Beauty,	1,211	bus.
<i>Turnips:</i> —		
Purple Top Swede,		
Carters Invicta,		
Gartons Keepwell,		
Good Luck,		
Gartons Model,		
Hartley Rouge Top,		
Kangaroo Swede,	3,695	packages

<i>Phlox:</i> —		
Drummond,	1,395	packages
<i>Eggs:</i> —		
White Wyandottes		
Rhode Island Reds,		
Barred Rocks,	9,284	dozen

The grains were distributed in 1 lb. packages, potatoes in 5 lb. bags, corn in packages of 160 kernels, and other seeds were put up in small sealed packages, sufficient to plant a plot 7 ft. x 10 ft. for vegetables and 10 ft. x 18 ft. for roots.

Mention was made in the August number of the GAZETTE, concerning the distribution of eggs in connection with this movement, hence there is no necessity for repetition here.

The following table gives a summarized and comparative statement of the number of fairs, number of children competing, and the number of entries made, with attendance, during the past three years:—



	1915	1916	1917
Number of fairs held.....	234	275	302
“ schools included.....	2,291	2,620	2,825
“ children taking part.....	48,386	60,262	68,862
Attendance of children at fairs.....	72,860	83,029	86,121
“ adults at fairs.....	84,406	95,217	82,077
Total attendance.....	157,266	178,246	168,198
Number of Entries.....	116,236	113,263	106,570
“ home plots.....	51,243	55,947	59,329



WHITE WYANDOTTES AT ODESSA, ONT., SCHOOL FAIR

In view of the unprecedented conditions which prevailed in regard to the labour problem, it was decided to discontinue an inspection of the school fair plots, with the exception of those in newly organized rural school fair districts. A special appeal was made to the teacher and the trustees to arrange for some local assistance in the inspection and judging of the plots in their school section. In many instances, the clergy visited the plots, in some cases either the teachers or trustees made the rounds and forwarded reports to the District Representative's office, who awarded prizes for the best cared for plots in the section.

#### IMPROVEMENT APPARENT

The majority of the representatives reported that the interest of the pupils did not wane on account of the plots not being judged by some one officially representing the Department, but on the other hand the very fact of getting the local people to undertake this work, stimulated greater interest among the parents in school fair work.

In spite of unfavourable conditions in many districts, the fairs were an improvement over last year, not so much in the number, as in the quality of the exhibits. Pupils are taking greater pains in

the preparation of their exhibits for the fair, and where size and quantity seemed to be the rule a few years ago, we now note a marked change, and quality is the outstanding feature.

Practically every organization connected with the rural communities stood behind the school fair and rendered valuable assistance, not only financially, but in the conduction of the various special features. Let me give a few concrete examples. The Board of Agriculture donated silver cups or shields to the boy or girl securing the highest number of points at the school fairs in the county, or to the schools whose teams won the live stock judging competitions; the women's institutes assisted in conducting refreshment booths in aid of the Red Cross, and undertook in some cases to supply judges for the girls' work in baking and sewing; the Junior Farmers' Improvement Association had complete charge of some of the live stock competitions conducted at the fair; the trustee boards and the township councils were generous in their assistance from a financial standpoint, in making grants to enable the Rural School Fair Associations to pay their prizes.

#### THE RURAL SCHOOL FAIR ASSOCIATION

Special mention, of course should be made of the Rural School Fair Association itself, which is composed of representatives from each school in the district, who were elected by ballot by their own school. The accredited delegates from each school would meet, form a rural school Fair Association, and elect officers. The School Fair officers would meet perhaps twice during the season to discuss matters pertaining to the welfare of the fair. Special duties were assigned each officer and director and their assistance was of untold value. The splendid business training these boys and girls would receive would no doubt stand them

in good stead in future years.

The usual custom in years past has been for the District Representative to distribute the seeds and eggs to the schools in the spring, by motor or livery, which would afford an opportunity to give a little talk to the pupils on agriculture. During the past season, two or three Representatives undertook to distribute seeds and eggs by parcel post or express. This method of distribution worked out splendidly in spite of the fact that we were somewhat dubious about shipping eggs for hatching by parcel post. The eggs arrived in good condition, only an occasional one was broken, and the hatch was quite equal to those distributed in former years. These pasteboard boxes cost approximately one cent each, and the postage for the empty box is 5c, and for the box containing one dozen eggs 14 cents.

#### SPECIAL FEATURES

The special features worthy of more than a passing note are the live stock judging competitions for teams of three boys from each school, who are asked to judge two classes of live stock, generally beef or dairy cattle and heavy horses, the public speaking contests in which from two to ten boys and girls compete; the boys and girls driving contest, which includes hitching and un-hitching; the school fair parades; physical drill under the Strathcona Trust; weed and apple naming contests; and the exhibition of calves and colts led by the boys who spent considerable time training their pet animals.

Special mention should be made of the "Children's Tag Day" at the school fair, when patriotic Buttons were sold by three girls from each school. The response in most districts was generous. Last year \$5,518.14 was collected from the sale of these buttons, and, after deducting expenses, a "motor carryall" costing

\$2,000.00 was purchased and donated to the Military Hospitals Commission, to be used specially to convey wounded soldiers from the hospitals to the Vocational Training Classes at the University. The inscription on the plate of the carryall bears these words: "The children of the rural school fairs in Ontario, Canada, organized by the Ontario Depart-

ment of Agriculture, donated this car from proceeds secured from the sale of patriotic buttons at the rural school fairs, held in the province, 1916." The balance of the proceeds was handed to the Soldiers' Aid Commission, to be used to relieve special cases of distress of returned men.

## NORTHERN SASKATCHEWAN

BY FRED W. BATES, B.A., M.Sc., DIRECTOR OF SCHOOL AGRICULTURE

**W**HATEVER the future may hold in store, the school fair is the best present-day means of arousing interest in the work of the school. It tends to break down that greatest of all hindrances to educational advancement—public indifference. It has undergone a severe testing, and has proven to

33 fairs, of which 6 failed to reorganize, but 25 new points took up the work, making a total of 52 for the year just ended. A few of these were local competitions among the pupils of a single school, but the great majority of these fairs drew support from 10 to 15 schools. As reports are still incomplete, it is



THE VEGETABLE EXHIBIT AT GRIFFIN, SASK., SCHOOL FAIR

be a most potent factor in bringing the school and the home into closer relationship and more sympathetic co-operation.

### RAPID DEVELOPMENT

In Northern Saskatchewan the movement continues to develop at a rapid rate. In 1916 there were

not possible to give exact statistics, but it is estimated that over 400 schools took part with some 7000 children, making 15,000 exhibits.

### HEARTY ENDORSEMENT OF TEACHERS AND TRUSTEES

The outstanding feature of the work in 1917 was the hearty and



widespread endorsement of the movement by teachers and trustees in convention. For several years school fairs have been held at isolated points, but within range of the observation of the teachers. Before 1916 only one of the school inspectoral districts in Northern Saskatchewan had a school fair organization. In 1916 a second inspectorate took steps toward complete organization, so that every pupil in every school might have opportunity to compete at a convenient centre. The past season a great advance in this line was made. Eleven of the remaining fourteen inspectorates, in convention

active interest and sympathetic attention of the teacher are absolutely essential if the true educational value of the work is to be conserved. The Rural Educational Association, consisting of teachers, trustees and others interested in boys' and girls' work, continues to be the most popular form of local organization. In these associations everyone interested in the school and its work unites in the common enterprise.

#### OTHER AGENCIES JOIN IN

Of the other agencies at work, the agricultural societies have given



COLTS AT SHAUNAVON, SASK., SCHOOL FAIR

assembled, endorsed unanimously the school fair movement, and adopted plans for complete organization for 1918. Only three remain unorganized, one of which plans to take the step early in the spring. Already many of the local centres in connection with the larger plans have organized, and are carrying on active preparation for this year's work.

#### THE RURAL EDUCATIONAL ASSOCIATION

The co-operation of the whole community is necessary to continued success in school fair work, but the

the greatest assistance, sometimes in organizing the school fair, again by support and financial backing, making the work of the fair committee less difficult, and very frequently by enlarging their own prize lists so as to include school work. The grain growers, homemakers' and women's grain growers' clubs have all rendered valiant service.

#### THE WHOLE WORK OF THE SCHOOL DISPLAYED

In Saskatchewan the school fair is regarded as an exhibition of the whole work of the school. Its pro-



gramme has steadily developed toward that end. Of course much of the school work cannot be placed on exhibit, but every year sees some modification which broadens its scope. The most noticeable development during the past season has been the emphasis laid on music, public speaking and sports. The lack of traditions of play and song in our western communities has drawn attention to the need of greater attention to these activities. The school fairs have given special prominence to contests in rote singing, original story telling, sports and games, resulting in a greatly aroused public interest. Handwork, household science, agriculture and gardening will always hold a large place, and especially

in the early stages of the work these may dominate the programme. However, the whole tendency is to develop a programme that will give the public a true idea of the whole range of the activities of the school.

The school fair movement continues to develop. It is more popular than ever. Few centres drop out after once attempting the work. There were 33 fairs in 1916, 52 in 1917, and, if present plans carry, there will be 100 at least in 1918. The school fair is meeting a need at present, and until some better device or project is developed to meet that need, it will remain with us and continue to grow in extent and popularity.

## SOUTHERN SASKATCHEWAN

BY A. W. COCKS, B.Sc., DIRECTOR OF SCHOOL AGRICULTURE

THE discussion of educational matters during the past two or three years in the Province of Saskatchewan has created considerable public interest in this important question, but the one agency which has done most during this period to direct the attention of the public to educational affairs, and more particularly to local conditions, is the school fair. The splendid support, financial and otherwise, given by the people of the province the past year to school fairs has been most encouraging. In Southern Saskatchewan at least 90 fairs were held during the fall.

On an average ten school districts would co-operate for the purpose of the fair, which would be held at some convenient centre, usually a small village or town. It is estimated that the average attendance was about 200 children and 200 adults, and the average number of exhibits 500. For the whole province this would mean that approximately 35,000 children and 35,000 adults took part in school fairs in the province during the fall of 1917.

## DEVELOPMENT OF THE MOVEMENT

The growth of the movement appears to take place in three fairly well-defined steps. First a single fair is organized by an inspector or a teacher or teachers' association or a homemakers' club, or some other interested individual or organization. This fair may be for the pupils of one school district or a number of school districts may join together and send their exhibits to some central point. Occasionally this first fair is held at the time and place of the teachers' convention for the inspectorate. The next step is the organization of a large territory, such as an inspectorate, a number of local fairs being organized at different points throughout the inspectorate, and a central fair at which the winners from the local fairs will compete being conducted by the teachers' association in connection with the fall convention. This plan has worked very successfully in the inspectorates of Yorkton, Balcarres, Kindersley and a few others. The next step and one which

the Department wishes to encourage is the formation at each of these local centres of a Rural Education Association. This association will be responsible for the school fair work of a municipality or other suitable unit of territory. In addition this association will make itself responsible for many other kinds of educational work, such as boys' and girls' club work and contests of various kinds; the organization of literary societies, debates, entertainments, short courses in agriculture, household science, home nursing, poultry keeping, etc. There are over 50 of these associations in the province at the present time, and with few exceptions all of them have held successful school exhibitions this fall.

#### INVALUABLE

From all parts the Directors have received reports which indicate the greatest interest and enthusiasm on the part of pupils, teachers, parents and ratepayers generally. Farmers have been known to stop their harvest work and hitch their horses to waggons and democrats in order to drive the children and their exhibits to the local fair. One such man was heard to say, "This half day has cost me \$80, but its worth it." In another case the teacher and pupils of a rural school were taken by the owners of automobiles a distance of 72 miles to the school fair. These children, who started from home at 5 a.m., were so full of enthusiasm and energy that they were able to win prizes in the singing, spelling and athletic contests after their long drive.

#### THE PRIZES

The committees in charge of arrangements had little difficulty in enlisting financial aid. Usually each school board contributed five or ten dollars and the municipal council often gives a small grant. The business men of the towns and villages

are quite generous with special prizes. One merchant offered a pony worth \$125.00 as the first prize in a spelling contest.

#### THE JUDGING

The judging was done by farmers, business men, teachers and representatives from the Department. This judging was not always an easy matter, and the ability of the farmers, their wives and other judges was often severely tested, but it is safe to say that no judge at the Provincial Exhibition at Regina ever gave more serious consideration to his decisions, and that no decisions were ever awaited with more eagerness and received with more general approval than those made by the judges at the school fairs.

#### BEST DAY OF THE YEAR

And what does the school fair mean to the children? Without doubt it is the best day of the year. It is their day. For weeks and months they have been preparing their exhibits from the garden, from the classroom and the great outdoors. They have been practising spelling, reading, singing, reciting, writing and physical exercises, and at last everything is ready for the fair. With happy faces, shining eyes and busy tongues they are driven in decorated waggons, buggies, democrats and autos to the chosen centre. While the judging of exhibits is in progress, the athletic contests are the centre of attraction, and this seems to introduce the pupils from one school district to those of another, and for the rest of the day there are no strangers. When the prize ribbons have all been attached, pupils, parent and friends commence a tour of inspection.

#### PRIDE OF THE MOTHERS

What a scene! One little fellow discovers he has a prize for his collection of weeds. His eyes sparkle with excitement and he exclaims,

"Oh, look! Where's mother?" He must show mother, and then, with justifiable pride, mother's eyes brighten too, and together they continue the search for more delightful surprises. The sewing and cooking naturally attract mother's eye, and she comments on the good work accomplished. "They only started this last spring, you know, after they knew there was to be a fair," she informs an interested neighbour, "I wish we had done some of this work when I was at school."

Next comes a splendid selection of insects. One of the teachers explains that the boy who made it was hardly interested in nature study at all a year ago, but the thought of the fair had spurred him on to work for his school, and now he was a nature enthusiast. The art work reveals much latent artistic talent, while the compositions indicate the power of clear expression and lucid thought seldom credited to our prairie pupils.

#### THE FARMER OF THE FUTURE

The vegetables shown at one of the school fairs would have done credit to the province at the International Soil Products Exposition, and are evidence of careful cultivation and good selection on the part of the young gardeners, the future farmers of Saskatchewan.

The hand-work often is also a revelation to many of what skilful fingers can accomplish. Then there are usually classes for live stock of various kinds, and the children are very anxious to have a prize ribbon attached to their pets, whether they be pigs, dogs, chickens, colts, calves or white mice.

#### ALL IS GOOD

As the darkness begins to fall the crowd gathers in some hall or one of the rooms of the school for the concert. The children provide the programme with perhaps the exception of one or two addresses,

while parents watch with natural interest and pride the contests of singing, elocution, spelling, etc. One gentleman, who came to Canada years ago from Austria, and who now possesses a good Canadian home and a prosperous farm, but whose knowledge of English was still very meagre, was asked his opinion of it all. "Fine," he said, "Good work, good schools, good teachers. My boy speak English good now; good country—good everything." No further comment is necessary.

At such conventions many of the exhibits are frequently sold by auction and the proceeds given by the committee to the Red Cross Society, the Belgian Relief, or some other patriotic organization.

#### A COMMUNITY BUILDER

The grain growers' organizations, agricultural societies and home-makers' clubs have supported this movement, and in some instances have been entirely responsible for the fair. The Tantallon fair, which was held for the first time in the fall of 1915, is an example of a fair held under the auspices of an agricultural society. This year the entries at this fair numbered over 1,000. In referring to the fair at Tantallon a Grain Grower writes, "But there is another feature which should not be lost sight of, and that is the effect of the school fair as a community builder, especially as it affects our foreign population. In this particular district are people of various nationalities, many of the children of which never mixed with those of other races. The school fair, however, brought to them an opportunity which was almost unique of acquiring in the most pleasant way a knowledge and understanding of races other than their own. This cannot fail to have an influence on the parents and must contribute much to the making of the Canadian nation of the future." These remarks are equally applicable to the majority of the other fairs.



#### A PERMANENT AND VALUABLE FEATURE

One splendid feature of the school fair movement is that it is chiefly dependent for its success and support upon local enthusiasm and initiative. While anxious to foster the growth of the movement, the Department of Education exercises little or no parental control over it, but through its officials renders as much assistance as possible. The inspectors

of schools and other officers of the Department assist in the organization and act as judges, but no financial aid by way of grants is given by the Department. Being practically independent of Governmental control and financial support the school fair will remain a permanent and valuable feature of our educational system, so long as it is able to attract and retain the interest and support of the local community.

### ALBERTA

BY JAS. MCCAIG, EDITOR OF PUBLICATIONS

THE work in connection with the school fairs in the Province of Alberta has followed much the same lines as in previous years, but it has expanded considerably both with respect to the number of fairs held and with respect to the work carried on. During 1916 the number of schools organized for school fair work was only eighty-five; during 1917 one hundred and fifty-seven schools were included, an increase of over 80%. In addition to there being a larger number of schools there was also a decided improvement in interest on the part of the public, and the attendance was very large, in some cases reaching up to about two thousand people, and in the majority of cases running from four to eight hundred. The quality of interest, likewise, was much greater than in the case of the ordinary mixed district fair. The limitation in the classifications and the fact that the work was done by children both led to a concentration of attention on the kind of work that is being done.

quets of cut flowers and chickens. This work was practically the same as last year, but there was an improvement shown in such matters as grading of potatoes, and in the smoothness and quality of all classes of garden products. The household science work included sewing and embroidery and darning; the making of tea biscuits and cakes; the canning of vegetables and fruits, and the preparation of school lunches. In grains, prizes were offered for sheaves of wheat, oats and barley, and also for hand-picked grain of wheat, oats and barley. The live stock classes were represented by pail-fed dairy heifers; pail-fed beef heifers and steers, and halter-broken and groomed foals. In addition to this, in all the fairs there were numerous miscellaneous classes, differing in different districts according to the tastes of donors and directors of the fairs. They included such matters as collections of weeds, collections of insects, collections of sewing, pure-bred calves, mixed stock exhibits by school pupils.

#### NOTICEABLE IMPROVEMENT

The standard classes of competitions among the pupils of each school included potatoes, carrots, beets, parsnips, turnips, mangolds, peas, bou-

#### THE BANKS HELP

At the Olds fair there was a fine exhibit of hogs, which was provided for by the co-operation of the district agent with the manager of the Bank



of Commerce. The pig-growing contest is really a miniature farm enterprise, which includes financing, feeding, breeding and selling. Each boy or girl wishing to enter the competition borrows sufficient money from the bank to buy two pigs. He feeds the pigs during the summer and sells one of them to retire the note, which bears 6%. The bank also gives prizes amounting to 6% at the fall fair. The other pig is kept for breeding purposes, and the success or failure of this work will have to be told the following year. All the animals shown gave evidence of good care and attention and while the original pair only cost thirty-two dollars, some of the single pigs sold as high as forty-five dollars on the day of the fair.

#### THE LIVE STOCK

The exhibits in live stock on the

whole this year were not especially strong, principally owing to the same press of work that limited the exhibits at the regular fall fairs. The importance of this side of the work is being realized to a greater and greater extent by the district agents and, in future, more attention will be given to the care of calves, colts and pigs, as it is felt that this class of attention and work on the farm is really what develops the best class of industry and skill in farm enterprise. The Department is satisfied with the work that has been done in school fairs to date.

In addition to the school fairs held directly under the supervision of the district agents there were a number of small fairs held in the province under purely local patronage, and many of these possessed an interest quite equal to those held under official direction.

### BRITISH COLUMBIA

BY J. C. READEY, B.S.A., DISTRICT SUPERVISOR OF AGRICULTURAL INSTRUCTION,  
CHILLIWACK, B.C.

A UNIVERSAL restlessness, a vague but real craving in the soul of man, a general dissatisfaction with the condition of things, has characterized the world during the past few years. It may be that the emphasis had been shifted from the things that endure to those things that have to do with external appearances. Whatever the reason for the restlessness has been, not many departments of human relationship and activity have escaped the lash of at least a considerable portion of public sentiment.

#### THE UPWARD TREND

Nor has our systems of education escaped. Even the man on the street has that vague feeling that something is not right with the finished product of our schools. While the load is light a machine with a flaw

may stand, but when the strain comes the flaw gives way and the service suffers. For the first half-century at least the world has moved on comparatively care-free and without a test. As a consequence of the ever-increasing carelessness, and with a gradual lowering of ideals characteristic of human weakness under prosperity the inevitable came, and we began to feel the want of that which is enduring. Culture is desirable, but it does not supply all the needs of the human race. Men must be served in vital ways, food and clothing, and a thousand other ministrations must be provided under our too complex civilization. Culture and the ideal of service must be combined in our educational systems, and we are beginning to realize, and how slowly we came to it, that the highest culture a human being can possess

is the desire and ability to serve. And so we understand now that the enduring part of an education, that for which the heart of humanity really craves, is qualification for service to others.

#### CORRELATION A NECESSITY

Since the ministration to the needs of human society requires the exercise of the muscular system as well as the mental faculties, it would seem clear at once that any system of education which does not correlate these two is at fault. To know "why" is an aid to intelligent action, but it does not supply the skill to act. There is nothing degrading, and there need be nothing mercenary, about the study of geometry when its problems are worked out in the construction of an article of utility or on a farm drainage survey. The "purity" of chemistry need not suffer nor the student of chemistry feel lowered in his cultural standing if the laws of that science are studied in connection with bread-making or soil-cultivation. But what a difference it does make when the boy or girl comes to the place where their contribution to human welfare begins if a trained and cultured mind, a mind appreciating and in harmony with its environment, finds a ready and skilful response from a trained and cultured hand.

#### THE PART AGRICULTURE PLAYS

Agriculture as a school subject lends itself well to this two-fold education. Science and art, mental and muscular development, potential pleasure and service are so well combined in the study of this subject and the cost of the necessary equipment so light that agriculture has been almost universally chosen to meet the universal demand for something to complete the training for service, and British Columbia, along with the other provinces of Canada, has given it a place in her list of

elementary and secondary school subjects.

#### THE PART OF THE SCHOOLS

In 1915, the work was opened up in the public schools of Chilliwack city and rural district and in the Chilliwack High School. It became apparent very shortly that the greatest problems came from the public schools. People did not recognize in the subject the answer to their demand for a better education. Teachers were untrained, though usually friendly in their attitude. A supervisor was put in charge, whose duty it was to give instruction in agriculture in the high school and to advise and assist the teachers in the public schools.

The support of public sentiment was necessary. A parent's interest in the attainments of his or her progeny seemed to be the vulnerable point and, consequently, the point of attack. An exhibition of produce grown by the pupils seemed to be the weapon. Accordingly, a small exhibit was made at the annual Chilliwack exhibition in September 1915, and following that a larger and better one was made the following year.

#### TAKES THE PLACE OF THE REGULAR EXHIBITION

Early in the present year the Directors of the Exhibition Association decided not to hold the annual fair. About the same time a call for patriotic production was issued by the Director of Elementary Agricultural Education for the province. The response to the call by the teachers and the boys and the girls was instant and unanimous, so that the summer of 1917 saw almost all of the space available for school gardens planted to carrots, potatoes, onions, and beans for the local evaporating plant. But since there was no occasion upon which an exhibit from the gardens could be made, the exhibition having been

cancelled, the local supervisor with the concurrence of the two school boards, prepared to hold the first school fair in Chilliwack.

#### THE PRIZES

The regular prize-list was continued and a large special prize-list was added. The regular prize-list offered prizes for the best exhibits selected by the pupils from their own school gardens. These were competed for by the one-room schools, two-room schools and schools with three or more rooms, respectively. The special list offered prizes for bird-houses, chicken feed-hoppers, corn, oats, eggs, garden plants, painting, composition, and biscuits, as well as competitions in grading potatoes and judging mangels. The special prizes totalled one hundred and fifty dollars, and consisted of cash and goods donated by the citizens of the city and district. The fair was held in the fine, new drill hall, and it was most gratifying to those interested that at times this building was almost filled to its standing capacity. There were three hundred and forty-three entries. In the biscuit class alone sixty dozen were shown—no easy task for a judge. The potato-grading and mangel-judging competitions excited very great interest.

Prof. P. A. Boving of the University of British Columbia judged the agricultural products. Local men

and women officiated in the other departments. Besides acting as judge, Prof. Boving donated a handsome silver cup to the winner in the mangel-judging competition.

#### PRODUCE OF THE SCHOOL GARDENS

A unique feature of the fair was the exhibit of all the produce grown in the school gardens. This produce was sacked and piled in one large stack at the end of the hall. The stack comprised seven tons of potatoes, eleven and one half tons of carrots, and two tons of onions, a total of twenty and a half tons. The sale of this produce brought three hundred and sixty dollars, and was the product of slightly over one and one-half acres. The proceeds go to the fund opened by the Department of Education for contributions by the school children of the province for patriotic purposes.

This particular school fair has fulfilled its mission. Prejudices have been weakened, and in some cases completely broken down. The slogan of the fair, "We do as well as we think," appealed to all because it was unmistakably demonstrated. The skill shown in the preparation of most of the exhibits was beyond expectation, so that the educational attainments of a large number of boys and girls resulting from their efforts will be a factor in their usefulness throughout life.

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During the war I will carry out every suggestion made by Food Controller Hanna, whom I have known intimately for twenty years. Mr. Hanna is a man of extraordinary ability and broad experience. He is handling the worst job that could be invented, and he is handling it better than 99 per cent of the men in Canada could handle it.—Honourable Duncan Marshall, Minister of Agriculture for Alberta.



# WOMEN'S INSTITUTES AND THE RURAL SCHOOL

## PRINCE EDWARD ISLAND

BY HAZEL L. STERNS, SUPERVISOR OF WOMEN'S INSTITUTES

IT is one of the aims of the Women's Institutes of Prince Edward Island to bring into closer relation the home and the school. To accomplish this, parents must be brought into sympathy and co-operation with the school, and how better can this be done than by bringing the mothers face to face with the unsanitary conditions surrounding the children, and in that way make them realize more fully the necessity for improvement.

Since the organization of the Women's Institutes in Prince Edward Island, there has been a marked improvement in many of the rural schools of the province. The Institutes are organized to include one, two or three school districts, and at present 55 schools receive the benefits of the Women's Institutes.

This improvement may be largely attributed to the fact that many of the Institutes hold their regular monthly meetings in the schools and the need of bettering conditions there has been brought more closely to the attention of the Institute members.

### SANITARINESS AND COMFORT

To abolish the open water pail and common drinking cup for a covered drinking fountain and individual cups has been the first work of nearly all the Institutes. The worn soft wood floors of many of the schools have been replaced by the more sanitary hardwood floors. The school-rooms have been painted inside and out, new desks, blackboards, blinds and maps have been supplied where needed, and some districts

have had the school grounds fenced.

The Institutes have endeavoured to encourage good reading among the children, and in several districts splendid school libraries have been started through their influence.

In addition to these general improvements the different Institutes have taken up various phases of this work. One progressive Institute took the entire responsibility of putting the primary department of their school in first class condition, with the result that their work was an incentive for the district to bring about improvements in the other departments of the school.

In some districts a committee of Institute members are appointed to visit the schools regularly. One Institute supplies the children with bulbs and flower seeds in order to encourage home projects, while other Institutes encourage the children by giving prizes to the school.

### DEVELOPMENT OF TASTE

The Institutes have aimed to develop the æsthetic side of the pupils' natures by having window plants in the school-rooms, suitable pictures on the walls, and in many ways making the rooms more attractive, so that not only will the children have the pleasure of working in more comfortable surroundings, but they will as a consequence do more efficient work.

When the Institute meetings are held in the afternoon, the children are occasionally invited to remain and to assist in the program. At one of these meetings held recently, the program consisted of an exhibition



in physical drill by the children under the direction of the teacher.

With the urgent call for patriotic work, there has necessarily been a decrease during the past months in the amounts of money voted for school improvements, but the interest in the schools is being kept up.

We look forward to the time when the Institutes will be free to carry on this work to a greater extent, and the members, working with a will and a spirit of co-operation, shall increase the efficiency of the public schools of the province.

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## NOVA SCOTIA

BY JENNIE A. FRASER, SUPERINTENDENT OF WOMEN'S INSTITUTES

THE Women's Institutes of Nova Scotia have been taking an active interest in the improvement of rural schools ever since the first organization in 1913. Co-operation with the teachers has been aimed at and successfully carried out. The sanitary conditions have been greatly improved and the surroundings beautified in many districts. The covered water container

and the individual cup have been introduced, libraries have been encouraged, globes and maps donated, school fairs instituted, classes to teach the girls sewing formed and conducted by the members of the Institute, and what is perhaps the most important the cleanliness of the interior of the schools has been faithfully looked after and insisted upon.

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## QUEBEC

MACDONALD COLLEGE

BY MRS. CAMPBELL-MACFARLANE, DEMONSTRATOR FOR HOMEMAKERS' CLUBS

BESIDES the school lunch demonstrations described by Miss Jeanette Babb, in THE AGRICULTURAL GAZETTE, November No. page 978, the Homemakers' Clubs have arranged to have demonstrations for the school children on the making of bread and cake and the canning of fruits and vegetables, in order to help them with their school fair work. The result has been a gratifying improvement in the quality of the exhibits. The displays of canned goods, hitherto unseen at school fairs, were highly creditable to the children and evinced their interest in doing their best towards saving food in war time.

Nearly all of the clubs are taking

special interest in the welfare of the schools, and many improvements have been brought about directly or indirectly by the influence of the individual club in its own district, i.e. improvement of sanitary conditions; improvement of play grounds; beautifying of the walls by means of good pictures; contributions for prizes at school fairs, etc.

This year the clubs propose to hold at least two meetings which shall be devoted to the subject of the education of the children to the end that they may become good citizens of the state. Teachers and the other authorities on education will be asked to address these meetings.

## ONTARIO

BY GEO. A. PUTNAM, B.S.A., SUPERINTENDENT OF INSTITUTES

WHEN the Women's Institutes of Ontario began to consider lines of activity for community betterment, their attention was naturally directed to the public schools. The Institutes, as is well known, have touched many local interests, but in no field of interest have their activities been of greater benefit to the youth of the land than their work in connection with the schools.

They started by appointing committees to visit the schools and co-operate with the teachers and trustees for planting out trees and flowers, vines and shrubbery, the two latter partly for the purpose of screening out-buildings. The interior of many schools have been cleaned and freshly painted, new blinds put up, educative pictures hung upon the walls, etc. The water supply has been examined, and much improvement has resulted in this respect. Drinking tanks have been installed, and in a few cases drinking cups introduced. Sanitary wash-basins, soap and towels have also been provided, while much improvement has been made in the sanitary conditions of the schools.

The funds for this work have been raised in many cases by concerts, socials, etc., held under the auspices of the Institute, while a number of school boards have assisted in financing the work.

## INTEREST IN SCHOOL FAIRS

The Women's Institutes have been an important factor in making the school fairs such a decided success in Ontario, and much encouragement has been given to the school children in some districts where they have no school fairs by the distribution of seeds and bulbs for home gardens, and the holding of special school exhibits in the fall. School gardens have also been encouraged

by the Institutes.

The girls in the public schools have been encouraged in sewing by the women of the Institutes giving the necessary instruction and donating prizes for the work done. Prizes have also been given by the members of the Institute for baking done by the girls, and in a few instances the boys have been included in this latter competition. New seating accommodation, graded to suit the children of all sizes, has been secured for a number of schools.

## HEALTH AND RECREATION

The health of the children has always been kept in view. Medical inspection has been made possible in a few centres through the co-operation of the school boards, the local Women's Institutes and the Department of Agriculture. A somewhat detailed report on this feature will be found in the Women's Institute report of 1916. Tooth brush drill has been a feature in a few schools, and a clean-mouth league has been formed to encourage the children in the care of teeth. Special cup-boards have been installed for the children's lunches.

In a few of the larger towns, special encouragement and direction has been given to the children in helpful entertainment and recreation. School concerts have been encouraged, and in some localities a literary society has been formed through the efforts of the Institute.

In a few centres a regular school field day has been organized and managed by the Institute. Prizes have been donated as a recognition of progress and ability in essay writing.

The Institute has been instrumental in organizing a parents and teachers association, including men and women, in order that the best interests of the school may be always kept to the fore.

## MANITOBA

BY S. T. NEWTON, SUPERINTENDENT, EXTENSION SERVICE

**D**URING the past year the public school has not received as much attention from the Home Economic Societies as usual, owing to the fact that the attention of the women of the province has been concentrated on the various Win-the-War plans. However, the children have not been entirely forgotten, and at the present moment a great deal of attention is being given to Boys' and Girls' Club work. Almost every club in the province has a member of the Home Economics Society as one of its directors, and their energy has not been confined to the strictly Home Economics contests. They have encouraged chicken raising, gardening, pig and calf raising as well, and have rendered splendid assistance in raising funds for the school fairs.

In the matter of canning and preserving they first encouraged the children to plant the garden seeds, the products of which would be suitable for canning, and then arranged for canning demonstrations, and as a consequence a large amount of per-

ishable food has been successfully canned for winter use by the school children.

The Home Economics Societies have co-operated with the health department in assisting the school nurses, and have consistently advocated medical inspection in the schools. In a considerable number of cases they have lent their assistance in beautifying the school premises both inside and out.

An increasing number of H.E.S. members are serving on school boards, and through them have succeeded in effecting many changes which are a direct benefit to the school children.

Wherever cookery and sewing demonstration lecturers have been spending a week in connection with the various societies, they have made it a point to get as many of the girls interested as possible, and the success of the cookery and needlework exhibits at the school fairs is due to their co-operation with the public and high school teachers.

## BRITISH COLUMBIA

BY WILLIAM J. BONAIVA, SECRETARY, DEPARTMENT OF AGRICULTURE

**I**N certain districts of the province, Women's Institutes have been instrumental in getting vastly improved conditions in rural schools with regard to equipment and surroundings, such as school gardens. On Vancouver Island, in particular, certain institutes have taken up this matter very keenly, and competitions have been organized which will no doubt have a far-reaching effect on the young students with regard to interesting them in agricultural and horticultural matters.

The first work that the Women's Institutes of British Columbia have attempted amongst the schools of the province was the starting of school gardens.

On Vancouver Island several of the institutes supplied the schools with seeds and interested ladies visited the schools at regular periods to assist the children in their work, but unfortunately the school trustees in some places did not have sympathy with this movement and it was dropped in these places.



In 1913 the Department of Agriculture distributed assorted packages with 12 pkts. of flower and vegetable seeds in each to schools applying through the Women's Institutes. The experiment was successful, and many schools made creditable showing at the flower shows and fall fairs. The following year this work was taken over by the Department of Education. In many districts the improved schools surroundings are due to this first interest taken by the institutes.

Arbour day has been observed at a few schools through the interest of the institutes, and some provide school sports that afternoon.

School committees have been appointed at each of the four institute district conferences to plan and suggest ways whereby the teachers, trustees and institutes might work together to improve school conditions, but unfortunately before anything definite had been attempted the urgent call for patriotic work came before the women and their plans have been "laid on the table" for the present; still we are glad to state that a number of energetic school committees are working locally.

#### EDUCATIONAL, SANITARY AND MEDICAL IMPROVEMENT

Sewing classes have been started in a number of the schools; improved sanitary conditions in a good many; sanitary cups and towels instituted; better lighting and ventilation (for these are especially noted); and on Vancouver Island some institutes were instrumental in procuring a proper supply of drinking water.

The Central Park W.I. was the means of having hot lunches at two schools, soup, bread and cocoa being served for 5c. Other W.I.'s have arranged for hot cocoa to be served at noon.

For some years the institutes have asked for medical and dental school clinics, the majority of the rural scholars not being within easy reach of medical help, and the cost of minor operations to correct defects of ears, throat and teeth being almost prohibitive when the cost of reaching a medical or dental centre had to be met.

Last year the institute conferences added to their requisition the request that the Provincial Board of Health arrange for medical and dental practitioners to visit the various districts, so that the children might be treated at convenient centres.

The Provincial Board of Health, realizing the interest taken by the institutes, has asked for their co-operation in improving sanitary conditions amongst the schools.

Quite a number of the Government travelling school libraries have been procured by the institutes and placed in the schools; the matter of forming parent-teacher associations was discussed at the fall conferences, also the question of the school penny banks.

It is hoped that some rural schools may have the benefit of this penny bank saving plan, our children are learning the grace of "giving" in their patriotic plans, and they also need to learn the grace of "saving."

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# PRINCE EDWARD ISLAND

## HOME PROJECT WORK IN THE SCHOOLS

BY J. E. MCLARTY, CHIEF, RURAL SCIENCE DEPARTMENT, PRINCE OF WALES COLLEGE

**I**N the spring of 1917 an appeal was issued to the school teachers of Prince Edward Island to enlist the energies of their pupils toward assisting in any way possible the great national movement for "increased production." A circular issued by the Rural Science Department of Prince of Wales College gave the following suggestions as work worthy of being conducted:—

### SUGGESTIONS FOR RURAL SCIENCE PATRIOTIC WORK

The necessity for increasing the food supply of Canada is apparent to everybody. In the next few months the producing powers of our country will be strained to the limit to help provide the necessary food products to feed the great armies of the allied nations. Here is a great opportunity for every school teacher to do real good patriotic work by encouraging and stimulating the Home Project Scheme together with intensive cultivation of your School Garden, if you have one at your school. Think of the amount which can be added to the food supply of P.E. Island, if every one of the 18,000 pupils enrolled in our schools can be induced to expend some of their energy along this line.

It would be well, during the war, as they are doing in other places, for every teacher in P.E. Island to endeavour to have a great part of the school garden given over to growing vegetables, rather than flowers. In addition to this, if each pupil in the schools could be induced to conduct some Home Project with the purpose of increased production great results could be accomplished. These projects may take the form of

1. Growing potatoes, turnips, sugar beets, oats, wheat, and other vegetables and grains.

2. Improving the poultry flock by careful feeding and watering, and increasing the quantity and quality of eggs produced by keeping houses and nests clean, gathering the eggs regularly and keeping them in a cool, dry, clean place until they are marketed, which should be done as regularly and frequently as possible.

3. Feeding calves or pigs.

4. Assuming some of responsibility in connection with some of the "chores" about the home.

5. Hiring with one of your neighbors for Saturdays and holidays.

6. Assisting where necessary at patriotic functions.

Make a supreme effort to have the pupils of your school among the ones who are doing a part to increase the food supply of the country.

Arrangements were made with a firm of local seed merchants to supply the schools with vegetable and flower seed at a special rate, also with Mr. Clark, Superintendent of the Experimental Farm, by which a limited supply of potatoes, oats, barley and flax was made available at special prices to school children. Through Mr. Kerr, Dominion Poultry Representative, settings of eggs from pure-bred "Bred-to-Lay" Barred Rocks were supplied by some of the leading poultrymen of the province for poultry improvement work.

The schools took willingly to the work, as is evidenced by the following returns taken from the midsummer reports by the teachers:—

### SUMMARY OF REPORTS RECEIVED ON HOME PROJECT WORK

	No. of Pupils
Beans.....	202
Vegetables.....	1,235
Flowers.....	225
Live Stock.....	106
Poultry.....	200
Grain.....	4
Strawberries.....	8
Sewing.....	78
Chores.....	113

The ultimate success of the work cannot be fully ascertained until the teachers report for the second half

year, but judging from the casual reports received, and the exhibits made at school fairs, many good results have been accomplished. The reports received include 93 schools where gardens were conducted at

the schools, and 175 schools where home projects only were carried out.

This year we hope to carry on the work somewhat along the same line, but introducing new ideas wherever possible to do so.

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## NOVA SCOTIA

### PIONEER WORKERS IN RURAL SCIENCE

**I**N the training of teachers in the province of Nova Scotia special attention is given to their preparation for school gardening and instruction in nature study. In the normal school training all the teachers get the rudiments of these subjects. In the spring months the best of the students are selected and placed in a class by themselves for special garden training. They take charge of the planting of the Truro school garden and of the greenhouse and hotbed work. When the summer school is in session the students

care for this same garden, and in the fall the crops are gathered and the flower seeds are saved by the new class that has just arrived for the regular normal winter term. Thus the one garden supplies some of the training of the three groups of students. From the general group that harvested the fall crops a special group is chosen to plant the garden the following spring. It is from this special group that teachers are secured to carry on much of the pioneer work throughout the country.

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## QUEBEC

### INSTRUCTION IN POULTRY RAISING

**M**ACDONALD COLLEGE is carrying on an important extension service in connection with poultry raising. The Poultry Department of the College, working through the rural schools, encourages the children to take an active interest in the work on the farms, and at the same time gives them an opportunity for doing practical work in poultry production.

The method employed is the distribution of hatching eggs to the school children and the holding of rural school fairs, where the chickens raised from the eggs supplied are exhibited. Eggs from a good strain of a pure breed of fowls are supplied

free of cost to the most deserving pupils, each pupil receiving twelve eggs, on the simple condition that each applicant agrees to do the best possible with the chicks hatched and to show them at a rural school fair held in the district.

At each fair a prize list is arranged which stimulates keen competition and provides as large a number of prizes as is consistent with the object in view.

This work was started in 1913 when 100 settings of eggs were distributed; in 1914 there were 425 settings distributed; in 1915 there were 610 settings distributed; in 1916 there were 541 settings distri-

buted; in 1917 there were 658 settings distributed. There were three rural school fairs held in 1913, nine in 1914, fourteen in 1915, thirteen in 1916 and twenty-one in 1917. Each succeeding year has been an increase

in the number of chicks raised per pupil and an improvement in the quality of the stock.

This work is having a decided influence in improving poultry-raising conditions in Quebec.

## ONTARIO

### LANTERN SLIDES FOR AGRICULTURAL CLASSES

BY J. B. DANDENO, INSPECTOR OF ELEMENTARY AGRICULTURAL CLASSES

THE agricultural extension service of the International Harvester Company provides slides for educational purposes free to schools which can profit by them. The secondary schools of Ontario, which are conducting classes in agriculture, and the seven normal schools have been arranged in three circuits with an average of ten schools in each circuit. For each of the three circuits there are eight sets of slides, that is to say, eight topics each illustrated by about 50 or 60 slides excellently arranged both for illustration and transportation. The circuit is arranged so that each set moves from school to school in regular order, remaining at one school for one week. The operation of the circuit closed on Dec. 15th, 1917, and opens up again on January 15th,

1918, each school holding whatever set may be on hand on December 15th until the circuit opens on January 15th.

The subjects covered by the slides are Corn, Dairying, the Housefly, Live Stock, Poultry, Soil Fertility, Home Economics, Canning. The slides for each subject are so arranged as to be useful for lecture purposes or for illustration to classes in schools. Most of the teachers of agriculture make use of the slides for public meetings in the locality and some as part of a programme for the school literary society.

A few of the schools where agricultural classes are conducted have not as yet lanterns, consequently these schools are not on the list.

The following schools form the circuits for 1917-18:—

<i>School</i>	<i>Post Office</i>	<i>Teacher</i>
High School.....	Whitby.....	G. S. Johnson
High School.....	Port Hope.....	G. G. Copeland
Collegiate Institute.....	Cobourg.....	R. D. Davidson
Collegiate Institute.....	Pictou.....	H. H. Graham
High School.....	Oakville.....	W. B. Wyndham
Normal School.....	Hamilton.....	G. A. McMillan
Normal School.....	London.....	John Dearness
High School.....	Niagara Falls South.....	W. A. Porter
High School.....	Essex.....	Norman Davies
High School.....	Leamington.....	G. A. Campbell
Collegiate Institute.....	London.....	J. F. Calvert
Collegiate Institute.....	Woodstock.....	Miss M. I. Shook
Normal School.....	Stratford.....	J. W. Emery
Collegiate Institute.....	Clinton.....	J. W. Treleven
High School.....	Arthur.....	A. R. McRitchie
Continuation School.....	Drayton.....	G. A. Clark
High School.....	Kincardine.....	F. V. Elliott
Collegiate Institute.....	Brockville.....	F. P. Smith
Collegiate Institute.....	Smith's Falls.....	G. W. Bunton
High School.....	Winchester.....	F. J. Barlow
Normal School.....	Ottawa.....	G. A. Miller



<i>School</i>	<i>Post Office</i>	<i>Teacher</i>
Normal School.....	North Bay.....	H. E. Ricker
Continuation School.....	New Liskeard.....	Miss I. E. Dobbie
Collegiate Institute.....	Fort William.....	A. J. Madill
High School.....	Athens.....	J. E. Burchell
High School.....	Williamstown.....	J. A. Cooke
Normal School.....	Peterboro.....	E. E. Ingall
Collegiate Institute.....	Renfrew.....	W. D. Hay

No charts have so far been made use of, but we are planning to introduce this feature later on.

## SASKATCHEWAN

### MUNICIPAL AGRICULTURAL SCHOOL

BY A. KENNEDY, M.A., INSPECTOR OF SCHOOLS

I AM grateful for expressions of appreciation that have reached me in which the South Weyburn school has been spoken of as being very nearly a perfect illustration of what a rural school should be. I have endeavoured to make it so, and since the day on which the Board accepted my recommendation, I have had the fullest co-operation of every man, woman and child in the district, so that it would have been my fault had progress not been made. Progress is still being made and the end is not yet. Only a few weeks ago Miss Eunice Bennett, the teacher in charge, undertook the noon-day lunch at an initial outlay of \$19. In the course of our conversation she jokingly remarked that she could saw a board straighter than I could. "Well," I said, "we shall see." At my request the Board purchased the saw and the board,—also incidentally, a hammer, a plane and one or two other tools. Miss Bennett is now proceeding to saw the board, and with the assistance of the children is installing the cupboards, shelves, etc., for the kitchen, using one of the cloak rooms for this purpose. They have taken a contract away from a carpenter, and are undertaking the installing of shelves in the library room. When that is completed they intend to build a library table, and the Board has already at my request, provided for

a number of magazines, journals, etc., for this table. I trust the Department of Education as well as the Department of Agriculture, the Department of Municipal Affairs, and the College of Agriculture, will manifest interest by putting this school



A. KENNEDY, M.A.  
Inspector of Schools, Weyburn, Sask.

on the mailing list so that bulletins and other literature will go on this library table for the use of the children, and the community. I will go further and ask that one of the



Government libraries be established in this school.

#### EXAMPLES

To indicate the striking typical efficiency of this school and its possibilities for the future, permit me to note the following incident. A few days ago, I was called from my Normal School Class to the telephone. "Mr. Kennedy, will you tell me on what dates the School Garden exhibition was held in 1915? I am Wilfred Spafford of South Weyburn school, and am writing a letter to *The Grain Growers' Guide*." It is impossible to convey in this letter the tone and spirit in which this request was made. As I walked back to my class I realized the deep significance of this telephone conversation and the possibilities of a real, living education for our boys and girls. I am quite confident that Wilfred accomplished more in the twenty minutes required to write that letter than is accomplished in the usual manner in twenty days; that his interest in the subject matter and his pride in writing a good letter gave him more of English composition, more of neat, businesslike writing, more of correct spelling and punctuation, more of efficiency, than would have been secured in the too generally accepted way.

On Sept. 17, 1909, I visited Hale S. D. 2044 and found there four children; my recollection is that not one of the four children spoke English at home. My attention was attracted to the "baby" pupil, a boy about six years old, and I was pleased to note some excellent work on his part. I was further attracted to him at the recess-period when the little fellow shyly asked Mr. A. M. Warner, the teacher in charge, if I would visit the garden. I shall not soon forget that little boy's beaming face as he looked up at me from beside his little plot and pointed with interest and pride to his tomato plants. That boy gave me the in-

spiration and showed me the possibilities of school garden work.

On February 29, 1916, Wilfred Spafford gave me an inspiration and opened to me a door into a larger future. The ring in his voice over the telephone wire will remain with me alongside the picture of that little six-year-old boy, whose name, unfortunately, I have forgotten. I trust that I may be able to transmit to the boys and girls of Canada the realization of the glory of this inspiration.

#### "A LITTLE CHILD SHALL LEAD THEM"

For some years I have followed with interest the development of rural high schools in various parts of the world. For the past year I have wearied people, I fear, with the question:—"What is a rural high school for this province?" On Feb. 29, 1916, Mr. C. M. Hamilton, a former teacher, now president of the Provincial Municipalities Association, turned the question on me. South Weyburn had furnished the answer:—a municipal agricultural school. I beg to point out that the change of name is significant. To put it concretely, South Weyburn is step No. 1; the provincial university, with its trinity—arts, agriculture and education—is step no. 3. One has but to solve the problem, the equation, to find step no. 2. The answer, I say, is the municipal agricultural school.

No. 1 has a site of approximately two acres, No. 3 has a site of approximately 1333 acres. The geometric mean is approximately 160 acres, a quarter section. No. 2 then is to have a site of 160 acres.

No. 1 has arranged for the warm noon-day lunch, and when later in the season the garden plots have advanced, the children will have fresh radishes to eat with their noon-day meal, and a bouquet of flowers, or a flowering plant for their table. No. 3 has the university residence and dining hall; solve the equation and secure the answer as to the living side of No. 2.

No. 1 began with the saw and the board; No. 3 has the several laboratories. Solve the equation to find the manner in which No. 2 will develop.

These points are but typical, but they solve the problems of financing and of tax-rate.

#### MUST BE BORN AGAIN

I said that the change of name was significant. South Weyburn did not merely modify its school plant; it was "born again". It will not be sufficient to modify existing high schools; a new municipal agricultural school must be born. Existing high schools will still have ample opportunity and work to do. The function of the municipal agricultural school is peculiarly a new need in our national life.

Some people smile, saying, "How can the school garden teach agriculture"? The school garden has

begun to answer the question, and will answer the question, in so far as it requires an answer. South Weyburn has been an educational school garden to me; has it not answered the question in a larger sense in solving the equation for the municipal agricultural school?

The full solution of this tremendously serious, infinitely potent problem will be materially assisted by the work of the community centre clubs in the several school districts, by the harmonious operation of the rural education associations of the municipalities, and by the co-operation of the provincial trustee's associations and kindred associations, with the Saskatchewan Educational Association and the various Departments of the government of this province. It is worth while that the educational energies of this province be exerted in the solution of the problem.

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#### THE SCHOOL LUNCH

ANSWERS received from a questionnaire sent to all of the rural and village schools in Saskatchewan indicate that about 12 per cent serve a hot dish to the pupils at noon.

The teachers in the schools where the hot noon lunch was served stated its advantages as follows: The school attendance is improved. The children are trained to be more efficient, self-reliant and economical. It makes for a well-conducted school room during the noon hour. Conditions are more homelike and sociable. It is a means whereby children may

be taught table manners. They are more considerate and patient. It makes them tidy. They are more interested in the school and do better work. Their health is better. No food is wasted, for the children eat all of their cold lunch.

In one Regina school, a cup of cocoa is served each day to the school pupils who cannot go home for dinner. Cocoa is prepared at recess by girls of grade 8 who serve it from large pitchers. Two cents per cup is paid by pupils who are able. To others, it is supplied free.

## SUGGESTIONS FOR AGRICULTURAL TEACHERS

**I**N a bulletin issued by the States Relation Service of the United States Department of Agriculture entitled, "Increasing Production on the Farm," suggestions are made for teachers in secondary schools under the heading "Administrative Problems." The bulletin says:

## WELL-TRAINED TEACHERS NEEDED

The amount and nature of the service which schools may render now in increased food production will be limited chiefly by the capacity and training of the teacher of agriculture. Never before was there such need for men who have the ability to make their instruction practical. The kind of work suggested means that the teacher must not only know scientific agriculture, but that he must also know how to practice farming, and what is even more important he must know boys and girls have the ability to bring out the best that is in them.

## TEACHERS TO BE EMPLOYED THROUGHOUT THE YEAR

Most of the practical work in production comes in the summer. It is during the summer months when the boys and girls need most help. If the work of the teacher of agriculture is to count very much in increased production, he must be employed throughout the year with the understanding that the summer is to be his busy time, when his work will count for most in the actual training of farmers. Teachers who are impressed with the spirit of patriotic service at this time will be

more willing than ever to put in overtime and put forth every effort to serve their country.

## MORE AND BETTER SUPERVISION

It is not only necessary to give more direction and supervision to the boys and girls in their productive home work, but it is also necessary to make a greater effort to coordinate and direct the work of the teachers themselves. If state funds are given to the teaching of agriculture and the direction of the project work, provision should be made for the proper supervision of this work not only to be sure that the funds are spent as intended but also as a means of establishing high standards and aiding the weaker teachers in reaching them. As such supervision should mean more than inspection, the work should be given to men who have a wide vision, a patriotic desire to help the country in this crisis, and the ability to inspire others to service.

## MORE ATTENTION TO TEACHER-TRAINING

It will be evident to those who are in charge of agricultural education that there is a dearth of men qualified to do this work. The present needs should emphasize the fact that we should not neglect the training of teachers of agriculture. There are such possibilities for aiding the nation through instruction and practice in productive agriculture that a special appeal should be made to college students to avail themselves of all opportunity to prepare themselves as teachers and community leaders in this work.

## PART IV

### Special Contributions, Reports of Agricultural Organizations, Publications and Notes

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#### VACANT LOT GARDENING A PRIZE-WINNING POEM

**I**N furtherance of the vacant lot gardening campaign of the Ottawa Horticultural Society, Mr. W. T. Macoun, the Dominion Horticulturist, inaugurated a competition for the best poem on a vegetable garden. Out of the several praiseworthy efforts sent in first prize was awarded for the following to Miss Henrietta Wood of Ottawa:—

MY GARDEN—1917

A DREAM

Rain-softened and sun-warmed, it stretches fair,  
Prepared to yield a wealth of all good things.  
In neat, well-ordered rows the seedlings pierce  
The rich brown mould, and seek the sunlight.  
Swift fly the days, and soon with eager hands  
I cull the radish, ruddy tinted globe  
Of pungent crispness; and green-gold lettuce;  
And that scented darling of the garden,

The spring onion.  
Behold my Vacant Lot, vacant no more.  
Here grow my cabbages, dew-pearled at dawn.  
There stands my corn, beplumed like knight of old.  
Look on my cauliflowers, white as snow;  
Potatoes, soon to yield a khaki host  
To rout the hordes of hunger; and carrots,  
Beets and parsnips, and many more fair growths  
Depicted in the catalogues. All these  
Adorn my garden.

Hark, the alarm sounds! The vision fades,  
'Tis morn; 'tis March. Deep lies the snow upon  
The unbroken sod, hiding the couch-grass,  
Snake-like roots and many a weedy foe.  
A thousand million tiny enemies,—  
Worm, weevil, beetle, bug,—in ambush lie.  
To win my harvest I must surely bear  
A thousand aches in my poor stooping back,  
And cramps in bending limbs, and sun-skinned nose,  
And countless freckles on my now fair arms.  
O say, thou preacher of domestic thrift,  
Dost think that I can conquer?

#### A NATIONAL FLOWER FOR CANADA

**A**T the annual meeting of the Ontario Horticultural Association held in Toronto on November 22nd, 1917, a resolution was adopted that it was proposed should form the basis of action to obtain for Canada a national flower. The subject was brought up by Mr. F. E. Buck, President of the Ottawa Horticultural Society, in the form of a report of the action that had been taken by the Ottawa Society during the past year. Mr. Buck presented two aspects of the question which the Ottawa committee considers deserve special consideration. The first is that this question of a national flower is one which interests, besides horticultural societies, other bodies of individuals, such as botanical departments of universities, educationalists and students of colleges and schools. It is, therefore, felt that, to a large extent, such would be more easily ap-

proached through this central committee and with that point in mind the committee has already written to the Minister of Agriculture to obtain Governmental support for the question, and to obtain permission to use THE AGRICULTURAL GAZETTE as one means of getting into touch with educational institutions, etc.

The other aspect which it is desirable to emphasize is that the initial work should be undertaken by the horticultural societies, because such societies are naturally trustees of the nation's sentiments in such a matter. They should, therefore, take immediate steps to see that the burial grounds in Flanders of Canadians who have fought and died that we might retain the right to possess national sentiments and ideals, are made spots where native flowers shall blossom and remind those who visit those burial grounds of the glories and beauties



of the country for which the dead gave up their lives, and that, amongst the burial places of those honoured dead, those of our sons shall be suitably clothed and perfumed with simple but enduring tributes from the homeland.

The report as presented gave the principal reasons why a national flower is desirable and suggested a plan for its selection:—

#### REASONS FOR A NATIONAL FLOWER

1. Nearly all other countries have national flowers.
2. A national flower signifies *national* personality and sentiment.
3. As a national emblem it becomes like a nation's flag, the golden cord binding together historic events and national incidents.
4. It has a definite value similar to the value of a state seal.
5. The selection of such a flower will encourage an increased interest in Canada's wonderful flora.
6. A national flower on the graves of fallen Canadians in Flanders will be as a perpetual banner over our noble dead.

#### PLAN OF SELECTION

For the purpose of obtaining the national mind as to which flower should be selected for this purpose the following plan is suggested:—

A. The presentation of the claims of certain flowers to as many individuals as possible.

1. Through horticultural societies, educational institutions, etc.

2. Through the medium of the Press.

B. By means of local committees named or appointed by horticultural societies and educational authorities.

C. The will of the people expressed in a majority vote to form the basis of definite action.

1. Through a central committee at Ottawa.

2. Which in turn will hand over its work to a Minister of the Crown to deal with the matter through legislative enactment.

The report named the following six flowers and gave the characteristics of each with respect to nativity, attractiveness, ease of cultivation, propagation and season of bloom:—Columbine, Perennial Aster, Trillium, Iris (Flag), Delphinium, Pæony.

## OFFICIAL PRICES OF BRAN, SHORTS AND MILK

Acting with the authority given by Order-in-Council of November 15th, 1917, the Food Controller has fixed the prices at which bran and shorts shall be sold. He has also fixed the amount in excess of cost at which milk may be sold. Following are the orders that have been issued:

#### BRAN AND SHORTS

That the maximum price at which millers shall sell bran and shorts after the 17th day of December, 1917, shall be:

\$24.50 per ton of 2,000 lbs. for bran.

\$29.50 per ton of 2,000 lbs. for shorts.

These prices shall be for bran and shorts in bulk, freight paid at Fort William and Port Arthur. To these prices may be added the cost of bags and freight from Fort William and Port Arthur to the point of destination, east of Fort William and Port Arthur. At points west of Fort William and Port Arthur, the maximum price of bran and shorts in bulk shall be, the price at Fort William and Port Arthur, less the difference between the freight charges to such points and the freight charges for delivery at Fort William and Port Arthur.

#### MILK

1. That from and after the first day of January A.D. 1918, and until further notice, milk distributors shall not charge more for milk sold by them than the actual cost of the milk delivered at their premises and, in addition to such cost, on milk sold in the province of

	Per Quart
British Columbia.....	5.25 cents
Alberta.....	5.25 "
Saskatchewan.....	5.25 "
Manitoba.....	5.25 "
Ontario.....	5. "
Quebec.....	5. "
Nova Scotia.....	5. "
New Brunswick.....	5. "
P.E. Island.....	5. "

2. That no retail dealer shall charge a higher price for milk than the price the milk distributors charge the consumers in the locality in which such retail dealer is carrying on business.

3. That as the cost of distribution is increased owing to an increase in the price of labour or otherwise, any distributor affected thereby may submit evidence of such increase to the Food Controller and ask that the maximum amount herein prescribed for distributors in the province in which such distributor is selling milk may be increased.

## ASSOCIATIONS AND SOCIETIES

## BROWN SWISS ASSOCIATION

The annual meeting of the Canadian Brown Swiss Association will be held at Sherbrooke, Quebec, on January 2nd. The secretary is Ralph H. Libby, Stanstead, Quebec.

## NOVA SCOTIA DAIRYMEN'S ASSOCIATION

The Fifth Annual Convention of the Dairymen's Association of Nova Scotia, will be held at the Agricultural College, Truro, on January 10th and 11th. The creamery butter exhibit will be held at the same time and place. The secretary of the association is W. A. MacKay, Truro.

## MANITOBA HORTICULTURAL AND FORESTRY ASSOCIATION

The annual convention of the Manitoba Horticultural and Forestry Association will be held at Winnipeg on February 21st and 22nd, 1918. The secretary is Professor F. W. Broderick, Manitoba Agricultural College.

## WESTERN ONTARIO DAIRYMEN'S ASSOCIATION

The annual convention and dairy exhibition of the Western Ontario Dairymen's Association will take place at Stratford, Ont., on January 16th and 17th. Frank Hearn, London, Ont., secretary.

## ALBERTA DAIRY CONVENTION

The Alberta Provincial Dairy Convention will be held at Calgary on February 20th and 21st; secretary, C. Marker, Dairy Commissioner, Calgary.

## BRITISH COLUMBIA DAIRYMEN'S ASSOCIATION

The annual convention of the British Columbia Dairymen's Association will be held at Chilliwack on February 6th and 7th. The third annual creamery butter exhibit will be held in conjunction with the convention. Mr. T. A. F. Wiancko, Department of Agriculture, Victoria, is the acting secretary of the association.

## BREEDERS' ASSOCIATIONS' ANNUAL MEETINGS

The annual meetings for 1918 of the National Records Live Stock Breeders' Associations of Canada and of the Ontario Provincial Associations will be held in Toronto as follows:—

	<i>Secretaries</i>
<i>Monday, February 4th</i>	
Canadian Thoroughbred Horse Society.....	T. J. Macabe, Toronto.
Canadian Swine Breeders' Association.....	R. W. Wade, Toronto.
Canadian Pony Society.....	G. de W. Green, Toronto.
<i>Tuesday, February 5th</i>	
Ontario Swine Breeders' Association.....	R. W. Wade, Toronto
Dominion Shorthorn Breeders' Association....	G. E. Day, Guelph, Ont.
Canadian Jersey Cattle Club.....	Bartley H. Bull, Brampton.
Ontario Berkshire Club.....	R. W. Wade, Toronto.
Ontario Yorkshire Club.....	R. W. Wade, Toronto.
Canadian Sheep Breeders' Association.....	R. W. Wade, Toronto.
Canadian Trotting Association.....	W. A. McCullough, Toronto.
Canadian Standard Bred Horse Society.....	John W. Brant, Ottawa.
<i>Wednesday, February 6th</i>	
Ontario Sheep Breeders' Association.....	R. W. Wade, Toronto.
Canadian Hackney Horse Society.....	H. M. Robinson, Toronto.
Canadian Kennel Club.....	J. A. Dowling, Toronto.

*Thursday, February 7th*

Canadian Shire Horse Association.....	G. de W. Green, Toronto.
Canadian Ayrshire Breeders' Association.....	W. F. Stephen, Huntingdon, Que.
Clydesdale Horse Association of Canada.....	J. W. Wheaton, Toronto.
Canadian Hereford Association.....	H. D. Smith, Ancaster, Ont.
Ontario Horse Breeders' Association.....	R. W. Wade, Toronto.

*Friday, February 8th*

Dominion Cattle Breeders' Association.....	R. W. Wade, Toronto.
Eastern Canada Live Stock Union.....	R. W. Wade, Toronto.

## WOMEN'S INSTITUTE COMPETITIONS IN BRITISH COLUMBIA, 1917

Women's Institute Competitions for the year 1918 in British Columbia have been arranged as follows:—

- (1) Prizes for Institutes having the best average attendance at meetings held during the year, based on membership as sent in to The Department of Agriculture. The prizes to consist of books to form the nucleus of an Institute library as follows: First, \$15; Second, \$10.
- (2) Prizes for Institutes having the best programme for the year 1918, consisting of books to the value of \$15 and \$10.
- (3) Prizes of \$10, \$7.50, \$5 and \$3 for essays by Institute members on the following subjects:—
  - (a) My War Garden and the Disposal of its Products.
  - (b) Conserving Food and Maintaining the Health and Happiness of the Household.
  - (c) Domestic Science and Household Economics as Essential Studies for our Girls.

- (d) Our Returned Soldier and What We Can do to Assist Him.
- (e) Necessity of Keeping Household Accounts.
- (f) The Place of the Institute in the Community.
- (g) Some of Our Problems When Peace Comes.
- (h) The Meaning of Democracy.
- (4) Competitions for junior members. Prizes of \$5 and \$2.50 for the best papers by the junior members on the following subjects:—
  - (a) Wild Flowers of our Neighbourhood.
  - (b) My Patriotic Work.

In the case of junior members a first and second prize will be given for each of these subjects provided there are a sufficient number of entries.

Essays must be from 1,500 to 2,000 words in length. Programmes will be judged from the point of view of merit as regards arrangement and subjects for discussion during the year, due allowance being given for the style in which the programme is prepared and the printing.

## PURE-BRED SHEEP SALES IN QUEBEC

BY A. A. MACMILLAN, IN CHARGE SHEEP DEPARTMENT, MACDONALD COLLEGE

In the past two years the pure-bred requirements of the local Wool Growers' and Sheep Breeders' Associations in Quebec had been partially met by the holding of four pure-bred sales in 1915 and two in 1916. These sales were very successful, but it was felt that there was room for a larger number, and, accordingly, last year a more extensive programme was planned with the object of affording better opportunities for individual selections within the province as well as to provide better facilities for outside purchasers.

The pure-bred sheep auction sales car was decided upon as the most convenient, cheapest and most expedient means of transportation for stock consigned to the sales, and in consequence thereof, arrangements were made with the Canadian

Pacific Railway to run a palace horse car from Waltham to Megantic, making twelve stops inclusive, at each of which an auction sale was held. The above route leads directly through or borders all of the ten associations already organized, so that each stop on the four hundred and sixty mile circuit was within the territory of one or other of the associations.

The palace horse car with slight reconstruction and some additional equipment proved to be entirely satisfactory. It provided ample accommodation for eighty to one hundred head of sheep, allowing sufficient space for feeding and watering during transit. The pens were so arranged that intending purchasers could see and handle the stock previous to the hour of sale.



The car was placed at Lennoxville, where some eighty head of the Shropshire, Oxford, Leicester, Cheviot, Hampshire and Southdown breeds were consigned for sale. The car was then moved to Waltham, where the first sale was held at Chapeau. Succeeding sales were held at Campbell's Bay, Shawville, Low, Lachute, Cowansville, Magog, Lennoxville, Cookshire, Scottstown and Megantic. At each stop animals of desirable conformation, quality and breeding were consigned for sale, and if not sold were carried forward to the following sales. In this way a full quota of animals, both male and female, was maintained in the car at all times.

Aside from the advantage of individual selection which the sales afforded to intending purchasers, they have had the effect of giving a general impetus to pure-bred breeding by stimulating interest in pure-bred stock among farmers in the various communities. The small and uninitiated breeders were also profited, not only by securing a larger number of sales, but as well by their actual associations with other breeders. The exchange and sale of older rams which was affected in a large number of cases has proven one of the greatest benefits of the sales, as many excellent sires which would otherwise have gone to the block are now doing good service at the head of another flock. The avenue of sale for the older rams at breeding value, thus eliminating the usual loss which previously occurred when they were sold for the block after one to two years of service, has tended to make the farmer more liberal, particularly when purchasing a good individual.

The sales were on a cash basis and entirely self-sustaining. No capital was provided except in certain cases where associations wished to bring in special stock. Each contributor consigned his

flock subject to a reserve bid, and a fee of seven per cent of all sales was deducted to cover expenses incidental to sale.

As was anticipated a number of outside purchasers took advantage of the sales to make their selections. A representative of the New Brunswick Government purchased seventy-three head. Thirty head went to the Prince Edward Island Government, thirty head were sold to parties in Alberta and several went to Ontario, the balance being sold to farmers and farmers' clubs in Quebec. A much larger number of pure-bred ewes could have been sold had they been available. In all two hundred and thirty-five head were sold.

Below is a statement of the numbers, average selling price and total value of sales for each breed:

	Average price	Total value
SHROPSHIRE:—		
56 rams.	\$28.24....	\$1,581.50
36 ewes.	33.15....	1,193.50
OXFORDS:—		
42 rams.	\$28.06....	1,178.50
20 ewes.	27.27....	545.50
LEICESTERS:—		
12 rams.	\$24.71....	296.50
CHEVIOTS:—		
35 rams.	\$26.01....	910.50
3 ewes.	34.16....	102.50
HAMPSHIRE:—		
10 rams.	\$33.62....	336.20
1 ewe.	26.50....	26.50
SOUTHDOWN:—		
4 rams.	\$23.75....	95.00
DORSETHORNS:—		
6 ewes.	\$20.00....	\$120.00
235, total number sold.		\$6,386.20
Average selling price,	\$27.17	

#### AN AYRSHIRE BREEDERS' CLUB

The Ayrshire breeders of Brome, Missisquoi and Shefford met at Foster, Que., on November 30th and formed the District of Bedford Ayrshire Breeders' Club, with

the following officers: President W. F. Kay, M.P., Philipsburg; vice-president, Jas. Davidson, Waterloo, Que.; secretary, W. M. Wallace, Warden, Que.

#### THE POMOLOGICAL AND FRUIT GROWING SOCIETY OF QUEBEC

The following gentlemen were elected officers of the Pomological and Fruit Growing Society of Quebec at the annual meeting held in Macdonald College, Dec. 6th, 1917, and the only resolution of note passed was to memorialize the Provincial Department to carry on a more aggressive campaign for the purpose of advertising the local fruits: Hon. President R. A. Rosseau, Acton Vale; Hon. Vice-President, Prof. W. Lochhead, Macdonald College;

President, Z. Abel Raymond, Plessisville; Vice-President, Chas. E. Slack, Abbotsford; Secretary-Treasurer, Peter Reid, Chateauguay Basin; Directors, G. B. Edwards, Covery Hill, J. R. Marshall, Abbotsford, G. P. Hitchcock, Massawippi, T. A. Raymond, Plessisville, Abbe Levasseur, Ste. Anne de la Pocatiere, A. D. Verreault, Village Des Aulnaies, J. M. Talbot, Quebec City, Rev. Father Leopold, La Trappe, Robt. Brodie, Montreal.



## ANNUAL CONVENTIONS OF ONTARIO WOMEN'S INSTITUTES

BY GEO. A. PUTNAM, B.S.A., SUPERINTENDENT

That the women of rural Ontario are awake to the vital problems of the day is quite evident after witnessing the large and enthusiastic audiences that attended the Annual Women's Institute Conventions held at Ottawa for Eastern Ontario; London for Western Ontario; and Toronto for Central and Northern Ontario during the month of November.

Red Cross Work demanded considerable attention, but when we say that the average amount of cash given, alone, for the 900 branches was about \$250.00, in addition to the numberless bales of clothing sent for Relief purposes, and individual boxes to the boys overseas, it is sufficient proof that patriotic work is well organized.

An interesting feature of the conventions was the reading of reports by delegates from the various branches and districts represented, and to note that while patriotic work took a foremost place in these reports, still the regular lines of institute work were carried on as well. Papers were prepared, business methods were adhered to—the members always bearing in mind that it is well to hand down to the younger generation a legacy worth while re business management. The co-operation of the girls was secured chiefly through the holding of demonstration lecture courses in food value and cooking, sewing and home nursing; and also by making the regular programme attractive to them.

Last year many of the branches took advantage of the free vegetable seeds sent out by the Department, and after supplying their tables throughout the summer with fresh vegetables, they had a surplus for canning in the fall. Many applied to the Department for a demonstration in canning. The libraries, also, are receiving attention. The women know that more interest should be taken in reading by old and young if they are to keep in touch with present day conditions, and as a result they are endeavouring to make their libraries a little more up-to-date.

To-day the country woman knows that she is standing behind her boy in the trenches when she is assisting in any way to increase production or to conserve food. After hearing addresses from Premier Hearst, Hon. Mr. Hanna, Dr. Creelman, and Mrs. Muldrew, speakers who have all the available information, and after hearing that no grain or no food of any kind was to be used in the distillation of liquor, she was ready to support the Food Controller in anything that he thought advis-

able for the best interests of the country. The women of the Institute will continue to assist as best they can in a greater production and to practise economy in their homes, so that they may give largely to patriotic calls and do their part in Food Conservation.

But, further than this, the women see right around them problems which cannot wait until after the war. The child is the nation's greatest asset, and as such should not be handicapped. That the child is handicapped is evident, as the report of the medical school inspection carried on in one of the best counties of Ontario would indicate.

Out of 20 schools visited, the lighting was good in only 2. The seating was good in 4. In the remaining 16 the child had to fit the seat rather than the seat fit the child. Only 2 were properly ventilated. Upon examining the children, 15% were found to be suffering from malnutrition, 38% had defective vision, 28% had nose and throat trouble, 75% had defective teeth, 5% had poor hearing. A record like this proves that something must be done at once.

Then again, after listening to addresses from Dr. Hill, of London, and Dr. Fitzgerald, of Toronto, on "Communicable Diseases," the ladies saw at once that they had another problem right in their own midst which demanded immediate attention, and they must co-operate with the city people in trying to control the vilest of all diseases.

That the Women's Institutes are anxious that something shall be done at once regarding these problems is evident from the resolutions which were adopted at the Toronto convention. These resolutions approved the work of the Food Controller and pledged him support; advocated education as a precaution against the spread of communicable diseases and further legislation relative thereto; requested additional grants of funds to enable the Institutes to further prosecute their work relating to medical school inspection; appealed to the Government for prohibition of the use of cane sugar in the manufacture of candy and the sale of ice cream; pledging the efforts of the Institute towards securing the use of fair grounds as recreation centres; favoured the extension of women's labour; deplored the high cost of living, and urged that official action be taken in order that children may not be unfed, underfed, or illfed.

## ONTARIO SHEEP AND SWINE DIRECTORS ELECTED BY MAIL

Mr. R. W. Wade, Secretary of the Canadian Sheep Breeders' Association and of the Canadian Swine Breeders' Association, in accordance with section 6 of the constitution of these organizations has received and counted the ballots for the election of directors for these associations outside of the province of Ontario as follows:—

## CANADIAN SHEEP BREEDERS' ASSOCIATION

DISTRICT, NAME AND ADDRESS OF DIRECTORS, 1918

Maritime Provinces... W. B. Bishop, 85 St. Germain St.  
St. John, N.B.  
Quebec..... V. Sylvestre, Clairvaux de Bagot,  
Que.

A. Denis, St. Norbert Station,  
Que.

Jas. Bryson, Brysonville, Que.

Manitoba..... A. J. MacKay, Macdonald, Man.  
Saskatchewan..... F. T. Skinner, Indian Head, Sask.

Alberta..... H. J. A. Evans, Lacombe, Alta.

British Columbia.... S.F. Tolmie, M.P., Victoria, B.C.

## CANADIAN SWINE BREEDERS' ASSOCIATION

DISTRICT, NAME AND ADDRESS OF DIRECTOR, 1918

Maritime Provinces... J. F. Roach, Sussex, N.B.

Quebec..... Alfred Gingras, St. Cesaire, Que.

F. Byrne, Charlesbourg, Que.

Manitoba..... W. H. English, Harding, Man.

Saskatchewan..... S. V. Tomicko, Lipton, Sask.

Alberta..... G. H. Hutton, Lacombe, Alta.

British Columbia S. F. Tolmie, M.P., Victoria, B.C.

## THE ONTARIO WINTER FAIR

The 34th Annual Provincial Winter Fair was held at Guelph from November 30th to December 6th, 1917, and attracted more entries and a greater attendance than ever before. The quality of the entries was also pronounced the best yet. There were altogether 8,123 entries, or upwards of 950 more than in 1916. The increase was in horses, sheep and poultry. Cattle, both beef and dairy, showed a slight decrease, as also did swine and seeds. Some noteworthy improvements as regards the shipping of stock and other details were observable. All the prize money was promptly paid before the exhibitors left the ground, and arrangements were made with the local banks to keep open until 6 p.m., and to re-open again later on, so that exhibitors might cash their cheques.

The judging competitions proved exceptionally interesting. In the Inter-County event for teams of three young men not over 25 years of age, chosen by the District Representatives, the trio from York County were the winners, as the team from the same county were in 1916. There were 19 teams competed. Two classes of each of the following animals were judged: heavy horses, beef cattle, dairy cattle, sheep and swine. In this competition York county won the Duff trophy, which was the highest prize competed for, with a score of 2,524, Oxford being second with 2,203, Victoria third with 2,143, Middlesex fourth with 2,127, Essex fifth with 2,079, and Waterloo sixth with 2,062. A silver medal was presented to each member of the winning team.

The Inter-year or open competition, for which students from the Ontario Agricultural College and farmers' sons not more than twenty-five years of age are eligible to compete for the trophy presented by Professor G. E. Day, also provided a keen and interesting contest. In the Inter-county competition, six money prizes are given ranging from \$10 to \$5 for each of

the classes of animals judged. In the students' and farmers' sons competition, five prizes are given for each of the classes, ranging from \$10 to \$6.

Another attractive feature was the moving picture show by the Ontario Government under the superintendency of Mr. S. C. Johnston, the chief of the new division that has come recently into existence. The Dominion Government exhibit and the exhibit of the National Soil Fertility League also attracted much attention.

## TWO YEARS' ENTRIES

A tabular statement of the entries for 1917 and 1916 follows:—

CLASS	NUMBERS	
	1917	1916
Horses.....	336	301
Beef cattle.....	177	335
Dairy cattle.....	105	
Sheep.....	555	336
Sheep carcasses.....	80	79
Swine.....	230	257
Swine carcasses.....	63	38
Wool fleeces.....	21	27
Seeds.....	252	370
Poultry.....	6,112	5,231
Dressed poultry.....	166	167
Eggs.....	26	25
Totals.....	8,123	7,166

## THE DAIRY TEST

The dairy breeds, Holsteins, Ayrshires and Jerseys, were well represented in the dairy tests. There were few Shorthorns and Grades. The champion in the three-day test was a Holstein, pure-bred, but not registered, owned by E. Grier, Woodstock, who also owned the winner in the grade classes in 1916. The score of the cow, which was entered under the name of "Lilly," was 304.425 points, and she gave 219.1 pounds of milk, testing 4.3% of fat. The score was 13.420 points below that of the previous year's winner, Sunbeam of Edgeley, a Jersey owned by Jas. Bagg & Son. Following is the record of the first prize winners in each class and compared with the records made in 1916:—

Age, Months	Name	Owner	RESULTS IN 1917			RESULTS IN 1916		
			Lb. Milk	Per Cent Fat	Total Points	Lb. Milk	Per Cent Fat	Total Points
HOLSTEINS								
48 and over.....	Polo Mercena DeKo	H. C. Hamner, Norwich.....	218.1	3.5	253.814	201.1	4.7	303.91
36 and under 48..	Duchess of Norfolk..	A. E. Hulet, Norwich.....	195.7	3.55	228.041	181.1	4.0	240.7
24 and under 36..	Pontiac Abberkerk Beets.....	Hiram Dymont, Dundas.....	172.7	3.6	205.127	144.5	4.0	185.9
AYRSHIRES								
48 and over.....	Lady Jane.....	A. S. Turner & Son, Ryckman's Corners.....	250.6	3.45	282.725	170.3	4.7	247.1
36 and under 48..	Brookside Lady.....	J. McKee & Son, Norwich.....	147.1	4.55	210.077	185.1	3.5	210.7
24 and under 36..	Scottie Victoria 2nd	J. McKee & Son, Norwich.....	130.2	4.25	175.122	112.3	4.4	155.7
JERSEYS								
48 and over.....	Mabel of Edgeley...	Jas Bagg & Son, Edgeley.....	158.4	4.8	239.261	195.3	5.4	317.84
36 and under 48..	Queen Greta.....	Jas. Bagg & Son, Edgeley.....	115.9	5.5	197.622	87.3	4.6	135.85
24 and under 36..	Edgeley Queen 2nd..	Alfred Bagg, Edgeley.....	108.0	4.7	162.057	95.9	5.6	161.3
SHORTHORNS								
48 and over.....	Royal Mysies Girl..	John Brown, Galt.....	177.9	3.5	206.992	158.6	3.4	176.9
24 and under 36..	Butterfly Beauty...	S. W. Jackson, Woodstock.....	87.5	3.8	108.587	102.8	4.6	147.2
GRADE								
48 and over.....	Lilly.....	F. Grier, Woodstock.....	219.1	4.3	304.425	211.3	3.8	253.02

### THE ONTARIO BEE-KEEPERS' ASSOCIATION

The Thirty-Eighth Annual Convention of the Ontario Beekeepers' Association was held in Toronto on December 11th to 13th. The Convention was well attended and great interest was shown in all the addresses. The Association having been successful in providing queens for the members, it was decided at this Convention to undertake the business co-operatively and to undertake the distribution of bees in pound packages. The Convention strongly urged that the Ontario De-

partment of Agriculture change the act in reference to foul brood so as to eliminate the word "knowingly" from the clause prohibiting the sale or distribution of any kind of bee supplies that are diseased without the permission of the Department. The election of officers was as follows: President, James Armstrong, Selkirk; 1st Vice-President, W. W. Webster, Little Britain; 2nd Vice-President, A. McTavish, Carleton Place; Secretary-Treasurer, P. W. Hodgetts, Toronto.

### PEEL COUNTY MILK PRODUCERS' ASSOCIATION

BY J. W. STARK, DISTRICT REPRESENTATIVE, PEEL COUNTY

The Peel County Milk and Cream Producers' Association was organized on February 24th, 1917. For a long time I had felt that the dairy interests in a county like Peel which supplied a large portion of the dairy products that went to the city of Toronto should receive more attention. There were a number of things in connection with the dairy trade that needed looking into, and it seemed that the best way to bring this about would be to form an organization. The meeting was really one of the regular winter meetings of the Board of Agriculture, and we advertised that it would be of special interest to dairymen, and said that we hoped to form a Producer's Association that day. In addition to the regular Board of Agriculture speakers we had Professor H. H. Dean from the O.A.C. give an address,

and Mr. Coleman, of the Dominion Dairy Branch, spoke on Cow Testing. About 200 farmers were present, and it was decided to organize under the name of the Peel County Milk and Cream Producers' Association.

The objects of the Association are to improve the dairy herds in the county by cow-testing, and the introduction of pure-bred sires; to do co-operative buying of feeds and supplies; and to secure fairer prices for dairy products. A small cow-testing association was organized and the bottles are brought to the Department of Agriculture office, where monthly tests are made by the Dominion Tester. Another matter to receive the attention of the executive was the question of price. Other lines of work are also receiving attention.



## AN INTER-PROVINCIAL BUTTER COMPETITION

At the annual convention of the Manitoba Dairy Association, to be held in Winnipeg on January 31st and February 1st, an Inter-Provincial Butter Competition will be held. Each of the three provinces of Alberta, Saskatchewan and Manitoba, will bring together on that occasion exhibits of butter that won prizes at each of the provincial competitions held at earlier dates. The provincial competitions include

five samples of 14 pounds each made respectively in June, July, August, September and October. The butter will be judged by men engaged in the butter trade in Vancouver and Montreal. It is expected that a standardization of butter, made in these three provinces to suit both these important markets, will be reached. Mr. W. Weir, Winnipeg, is secretary of the Association.

## SASKATCHEWAN CATTLE, SHEEP AND SWINE SALES

BY P. M. BREDT, SECRETARY, SASKATCHEWAN LIVE STOCK ASSOCIATIONS

The sales of cattle, sheep and swine held in connection with the winter fair at Regina were very successful, and practically all contributors expressed themselves as being well satisfied with the prices realized.

In pure-bred sheep, 109 head were sold at an average of a little under \$50.00 per head, and 69 swine were sold at an average of \$28.53. This latter would have been considerably higher if it had not been for the fact that a number of young stock, four months old, was contributed to the sale, and this brought comparatively low prices. The average of boars and sows, seven to eight months old, was over \$40.00 per head.

Approximately 300 head of grade sheep found ready buyers and the average, including lambs, was \$14.80. The top price for grade ewes was \$28.00 per head for a bunch of six contributed by the University.

A record price was made for Western Canada in pure-bred sheep, when an imported Shropshire shearling was sold to Mr. E. S. Clinch, M.L.A. for Shellbrook, for \$325.00. Besides the highest priced ram about fifteen brought \$100.00 and over.

Four pure-bred Shropshire ewes, contributed by Mr. Skinner, were sold at \$77.50 and \$75.00 per head respectively, the highest prices ever realized for pure-bred ewes at Saskatchewan sales.

Berkshires were in most demand in hogs, and the highest priced boar sold for \$65.00, while the top price for sows was \$58.00.

In the cattle sale about 100 head changed hands, the number being made up of 72 pure-bred Angus and Shorthorns, and 27 grades, the grades being mostly one or two year old heifers.

The highest price at the sale was paid for a three-year-old Shorthorn heifer, contributed by W. G. Wilkinson of Tuxford, and sold to W. C. Honey, of Binscarth, Manitoba, for \$910.00.

The following are particulars of the number sold and the average prices realized:

	Average price
66 Shorthorns.....	\$203.18
6 Angus.....	220.00
27 Grade heifers.....	75.18
109 Pure-bred sheep.....	49.57
288 Grade sheep.....	14.80
96 Pure-bred swine.....	28.53

## ALBERTA SHORTHORN BREEDERS' ASSOCIATION

A provincial Shorthorn Breeders' Association has been formed in the province of Alberta. The following officers have been elected: Honorary president, Hon. Duncan Marshall, Olds; honorary vice-president, A. E. Myers, Demonstration Farm Branch,

Department of Agriculture; president, Senator Talbot, Lacombe; first vice-president, James Sharpe, Lacombe; second vice-president, Herbert Wright, Blackie; secretary-treasurer, Charles Beeching, Nanton.

## NEW PUBLICATIONS

THE DOMINION DEPARTMENT OF  
AGRICULTURE

## SEED BRANCH

Pamphlet No. 1 entitled "Cleaning Seed" discusses the purposes of cleaning the seeds of grain, grasses and other farm crops and describes the method by the use of the modern fanning mill. The pamphlet is illustrated with screens and riddles.

## THE ENTOMOLOGICAL BRANCH

The Entomological Branch is distributing a series of leaflets regarding the protection of crops. The object, of course, is to caution farmers, gardeners and vacant land cultivators against the approach and inroads of insect pests.

Enquiries or further call for assistance addressed to the Dominion Entomologist, Department of Agriculture, will receive attention.

PROVINCIAL DEPARTMENTS OF  
AGRICULTURE

## QUEBEC

*Sheep Raising for Profit in Quebec*, by A. A. MacMillan, B.S.A., in charge of sheep husbandry, Macdonald College; Bulletin No. 50. In the 58 pages of which this bulletin consists Mr. MacMillan has gone very fully into his subject, dealing (with diagrams and illustrations) with the characteristics of the different breeds, buildings and equipment, flock establishment and improvement, seasonable management, feeds and rations, diseases and marketing.

## MACDONALD COLLEGE

Macdonald College has arranged to send out a weekly press bulletin containing articles written by members of the college teaching staff and dealing with agriculture, household science and rural schools. Bulletin No. 1 contains articles by Professor Barton of the Department of Animal Husbandry; Miss Anita E. Hill, Head of the School of Household Science, and Professor Sinclair Laird, Dean of the College for Teachers.

## ONTARIO

*Keep an Extra Sow and her Litter*. Circular No. 6 of the Provincial Department of Agriculture gives plain counsel and instruction for raising pigs of a special value to small breeders.

## MANITOBA

The Department of Agriculture of Manitoba has issued a leaflet regarding the pledge cards which are being sent from the Food Controller's office. The leaflet is an appeal for thrift in every branch of the household.

The Extension Service of the Manitoba Department of Agriculture has circulated an eight-page leaflet dealing with the "Conservation of Food" and other matters of like importance.

Bulletin No. 25 of the Manitoba Agricultural College gives the rules for organization and conducting Debating Clubs and subjects suggested for discussion

## SASKATCHEWAN

*Gardening in Saskatchewan*, by W. W. Thomson, B.S.A., Director Co-operative Organization, Bulletin No. 55. Mr. Thomson in this bulletin tells of the importance of the garden, of its methods of cultivation, of how to raise vegetables and fruits and of how to control insect pests.

## MISCELLANEOUS

*Dominion Shorthorn Herd Book*.—The thirty-third volume, recently published by the Dominion Shorthorn Breeders' Association from the offices of the Canadian National Live Stock Records, Ottawa, contains, besides minutes of the last annual meeting, lists of officers, the usual recording features, and a frontispiece of the late John Bright, Live Stock Commissioner for Canada, the registered pedigrees of bulls from No. 105,035 to 109,865, and of cows from 116,715 to 124,360.

*New or Noteworthy North American Fungi*. Reprinted from "Mycologia," New York, Volume 9, Number 6, November 1917, by John Dearnness, Vice-Principal, Normal School, London, Ontario. Besides observations on some plants of Professor Dearnness' own collection, the article contains notes on interesting specimens collected in British Columbia by Dr. Macoun and in the Arctic by Mr. F. Johansen of the Canadian Arctic Expedition. Some of the specimens contributed by Mr. Bartholomew are from the West Indies and the Middle States.

## NOTES

The New Brunswick Provincial Dairy School at Sussex has been destroyed by fire.

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Interned aliens in Nova Scotia have been employed in ditching in the fields and macadamizing the barn yard at the Experimental Farm at Nappan.

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A Holstein Breeders' Association has been formed in the county of Durham, Ontario. Mr. A. A. Gibson of Newcastle, has been appointed Secretary.

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Mr. F. M. Clement, Professor of Horticulture, University of British Columbia, has been appointed secretary of the Fruit Growers' Association of British Columbia, succeeding Mr. R. M. Winslow.

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The short courses in horticulture held by the University of British Columbia were attended principally by returned soldiers. The classes consisted of about twenty per cent of fruit growers from various parts of the province and eighty per cent of returned men.

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The Department of Agriculture of British Columbia has decided to send the monthly *Agricultural Journal* published by that Department free from the beginning of the present year to all members of Farmers' Institutes that have a membership fee of \$1.00.

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The prize winners in the Boys' and Girls' Competitions held throughout the various parts of the province of Manitoba were brought together to spend a week in the city of Winnipeg and the Agricultural College. A remarkable feature in connection with the provincial prize winners is that twenty of them are girls and only six boys, in spite of the fact that the contest was based for the most part on agricultural competitions.

To meet the shortage of cheesemakers in the province of Ontario the Dairy School at the Ontario Agricultural College will admit to their regular course for cheese makers for the first time this year, men who have not had factory experience. The course opens on January 2nd and will continue into March.

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Dr. Alonzo B. Melvin, Chief of the Bureau of Animal Industry of the United States Department of Agriculture, died on December 7th after a long illness. Dr. Melvin occupied the position of the Chief of the Bureau of Animal Industry for twelve years.

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The eighth annual exhibition of seed grain held by the Province of Quebec will be held at Quebec city on the 30th and 31st of January. This will be conducted under the joint auspices of the Provincial and Dominion Departments of Agriculture. At 11 o'clock on the second day an auction sale of the seed grain exhibited will be held.

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Farmers' Weeks will be held as usual at Macdonald College in February. One week will be devoted to Cereal Husbandry and Animal Husbandry, another week to Poultry, and the third week to Horticulture. For the first time, a week will be devoted to farm women of the province of Quebec, in which courses will be given in Household Science.

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The ladies of the Saskatchewan Department of Agriculture have organized themselves into a circle to help forward the work of the British Empire Agricultural Relief of the Allies Fund. They had a table at the Saskatchewan winter fair, recently held, from which they appealed to exhibitors and visitors for contributions. The responses were generous.



# INDEX TO PERIODICAL LITERATURE

*The Canadian Poultry Review*, 184 Adelaide St. West, Toronto, November, 1917.

Poultry Breeding and Its Problems, by M. A. Jull, B.S.A., Poultry Manager and Lecturer, Macdonald College, Que., page 438.

*Canadian Farm*, Toronto, Ont., December 5, 1917.

Mushrooms by W. W. Jackson, Botanist, Manitoba Agricultural College, Winnipeg, page 6.

*The Canadian Horticulturist and Beekeeper*, Toronto, December, 1917.

Apiary Inspection and Demonstration Report for 1917. Morely Pettit, Provincial Apiarist, page 314.

Plant Breeding at the Central Experimental Farm, by A. J. Logsdail, B.S.A., Assistant in Plant Breeding, page 309.

*The Canadian Countryman*, Toronto, Ont., December 22, 1917.

A National Policy for Grain and Live Stock, by Herbert C. Hoover, United States Food Administrator, page 1568.

*Farm and Ranch Review*, Calgary, Alta., December 5, 1917.

Post-War Agriculture, by J. B. Reynolds, B.A., President, Manitoba Agricultural College, page 1066.

Hope and the Opportunity, by T. A. Benson, Edmonton, Dominion Poultry Representative for Alberta, page 1070.

Nov. 20.—Increased Production of Hogs for 1918, by G. H. Hutton, Vice-president Canadian Swine Breeders' Association, page 1036.

Dec. 5.—Tractor Ratings, by Professor J. MacGregor Smith of the College of Agriculture, University of Saskatchewan, Saskatoon, page 1069.

*Farm and Dairy and Rural Home*, Peterboro, Ont., November 28, 1917.

Poultry Pointers by F. C. Elford, Dominion Poultry Husbandman, page 1284.

*Farmers' Advocate and Home Journal*, Winnipeg, Man., November 28, 1917.

Dec. 12.—Feeding High Priced Grains to Hogs, by M. J. Tinline, Superintendent of Dominion Experi-

mental Station, Scott, Sask., page 1755.

Dec. 26.—How about the Hog, by W. J. Elliott, Superintendent, School of Agriculture, Olds, Alta., page 1854.

*The Grain Growers' Guide*, Winnipeg, Man. November 28, 1917.

Acre of Pasture Worth \$50, by J. H. Hutton, Vice-president, Canadian Swine Breeders' Association, page 1952.

School Fairs in Saskatchewan, by A. W. Cocks, B.Sc., page 1927.

Dec. 12.—Better Farming Club, by L. H. Newman, Secretary, Canadian Seed Growers' Association, page 14.

*The Maritime Farmer*, Sussex, N.B., December 4, 1917.

Finishing Lambs for the Block, by E. S. Archibald, Dominion Animal Husbandman, page 134.

The Farm Flock, by George Robertson, Poultry Division, Experimental Farms page 147.

*Nor'-West Farmer*, Winnipeg, Man., November 20, 1917.

Breeding the Dairy Shorthorn in Alberta, by H. A. Craig, Deputy Minister of Agriculture, page 1219.

Sheep Raising Conditions and Prospects, by J. McCaig, Alberta Department of Agriculture, page 1217.

Dec. 5.—The Nations Call for Meat by Dean Rutherford, Saskatoon, Sask., page 1286.

Some Famous Families of the Scotch Shorthorn. A Study in Pedigree for Young Breeders, by Hon. Duncan Marshall, page 1292.

Dec. 20.—Cost of Producing Pork, W. C. McKillican, Superintendent Brandon Experimental Farms, page 1448.

*O. A. C. Review*, Guelph, Ont., November, 1917.

The Export Dairy Trade, by H. H. Dean, Professor of Dairying, page 71.

*The Saturday Press and Prairie Farm*, Saskatoon, Sask., November 24, 1917.

How to Kill and Dry-pluck Poultry, by R. K. Baker, B.A., Professor of Poultry Husbandry, College of Agriculture, page 3.

# PART V

## The International Institute of Agriculture

T. K. Doherty, LL.B., Commissioner

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### FOREIGN AGRICULTURAL INTELLIGENCE

The Institute is an international clearing house of agricultural information, trade and statistics, a State institution made up of fifty-five adhering countries.

The Canadian Commissioner furnishes the Institute the information needed concerning Canada, and in this connection solicits the active co-operation of all the readers of this section. It is particularly desired that duplicate copies of articles to be published in current periodicals or reports summarizing results of original research and investigations of universal interest, be sent to the Canadian office for communication to the Institute, to be available for publication in one or other of its three original monthly bulletins. Similarly, duplicate copies of all agricultural reports and writings, whether official or not, are requested for the Rome and Ottawa libraries.

The Canadian Commissioner makes available to Canadians information published by the Institute, for which purpose this section of THE AGRICULTURAL GAZETTE is published monthly. It contains articles and summaries from the original Institute publications. Owing to lack of space many articles are merely indicated, but may be secured upon application to the Commissioner.

Similarly, the Canadian office cheerfully collaborates with anyone desiring to investigate details of foreign agricultural methods and processes, legislation, organization or administration. The Institute library at Ottawa, which has been made as nearly as possible a reproduction of the great International Agricultural Library at the headquarters of the Institute, Rome, now contains about 35,000 books, reports and pamphlets, and a reference catalogue of some 165,000 cards, which includes a complete set of the cards of the U. S. library of Congress referring to agriculture. There are also some 350 periodicals, a great many of which are indexed by the H. W. Wilson Agricultural Index and are consequently easily available for the investigation of current questions. Anyone who may be unable to visit the library in person may write to the Commissioner, who will, if desired, have appropriate bibliographies and memoranda prepared on any given subject.

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All communications in regard to this section should be addressed to T. K. Doherty, International Institute Commissioner, Department of Agriculture, West Block, Ottawa.

The original Institute Bulletins may be obtained direct from the General Secretary of the International Institute of Agriculture, Rome, Italy. The subscription rates postpaid are as follows:

	Per annum
International Review of Agricultural Economics.....	18 francs
International Review of the Science and Practice of Agriculture.....	18 “
International Crop Report and Agricultural Statistics.....	6 “
The three Bulletins together.....	36 “

## SCIENCE AND PRACTICE OF AGRICULTURE

## GENERAL INFORMATION

617—Observations on Certain Flies Infecting Meat and Causing Human Myiasis—DEXLER, GUSTAV, in *Zeitschrift für Fleisch- und Milchhygiene*, Berlin, Nov. 1 and 15, and Dec. 1, 1916.

The writer has visited two of the biggest meat markets in Vienna and has carried out observations on the live adults, eggs, larvae, pupæ, etc., of flies which visit meat.

The following are the conclusions derived from these observations:

1) Flies prefer, both for egg-laying and feeding, fresh meat at a temperature of at least 17°C. Chilled or frozen meat is avoided by them.

2) The eggs are laid for preference in those portions of the meat which are fairly damp, warm and not directly exposed to sunlight: abdominal cavity, lower part of back, muscle folds, etc.

3) The species most frequently occurring on meat are: *Lucilia sericata* Meig.—*Calliphora erythrocephala* Meig.—*Sarcophaga haemorrhoidalis* Meig.—*S. nurus* Rond.—*S. falcata* Pandelle.—*Phormia groenlandica* Zett.—*Muscina stabulans* Fall.—*Fannia canicularis* and *F. scalaris* L. The following rarely occur on meat: *Ophyra leucostoma* Wiedem. and *Drosophila funebris* Fabr.; they feed on it but never oviposit. The same thing holds for *Musca domestica*—*Calliphora vomitoria*, *Sarcophaga carnaria* *Musca meridiana* and *Stomoxys calcitrans*.

4) The presence of the larvae of these flies affords no evidence as to whether the meat is putrid or not.

5) The dimensions of the larvae can only be determined with precision after they have been killed; the size is practically of no use for determining the length of infection.

6) If the infected meat is exposed to a temperature of 10°C. (50°F.) the process of hatching is arrested and the eggs gradually die off.

7) The larvae die if exposed to direct sunlight or if the medium in which they occur becomes dry.

8) A temperature of below 7°C. (44.6 F.) arrests the development of the larvae but does not kill them. The optimum growth temperature is between 20° and 40° C. (68° and 104° F.) The larva pupates on

the 5th or 6th day after hatching, both at the above temperatures or at a temperature of 15° to 17° C. (59° to 62.6° F.)

9) Meat containing larvae can be dangerous to man if eaten raw.

10) No effective method is yet known for protecting meat from becoming infested with flies. At present, the best way is to keep the meat in a cool, dark place. The larvae are not killed either by washing the meat with vinegar or a solution of potassium permanganate, or even by immersing the meat in these two liquids.

618—The Station for Forestry Research in Denmark.—*Det Forstlige Forsøgsvæsen i Danmark*, Vol. IV., Part 4, pp. 461-463. Copenhagen, 1915.

The management of the Station is in the hands of a Chief in conjunction with a Commission of five. The Commission meets once yearly at least. It settles the plan of work for the coming session and draws up the budget. It reports upon the work of the preceding session. It has the power to entrust the direction or execution of a piece of work to a person other than the Station Chief, although in cases where the nature of the work demands continuity it shall be the Station Chief who has preference. The Commission may consult technical men and invite them, if necessary, to attend their sittings, in cases where they are deemed specially competent to deal with some special question.

Up to the present, the Station has published 4 volumes (1905-1915) of reports. Beginning with the 4th volume the reports, printed in Danish, are accompanied by summaries in English, French and German. The following is a list of subjects dealt with up to the present.

Growth and yield of forest trees; Trials of foreign species; Researches on forest soils and particularly the forms of humus and soil biology; Mechanical and chemical analysis combined with trials on the application of artificial fertilizers to spruce, Scots pine, fir and oak in heath soils; The action of storms on forest trees; Races and forms of forest trees; Control of diseases of forest trees; Management, thinning and repopulating of beech; Manufacture and employment of wood for joinery and fuel; Easy and economic methods of mensuration of timber.



## CROPS AND CULTIVATION

619—A Review of Investigations in Soil Protozoa and Soil Sterilization.—KOPELOFF, N., and COLEMANN, D. A., in *Soil Science*, Vol. III, No. 3, pp. 197-269. New Brunswick, N.J., March, 1917 (1).

As there has been no adequate historical review of the literature dealing with soil sterilization and soil protozoology, with the exception of certain introductory briefs published in connection with investigations along one definite line or another, the writers considered it advisable to present a survey of the subject to date, not only as an introduction to the investigations to follow, but likewise as being of inherent value to the investigator pursuing specialized work along these and allied lines, and those whose interests may lead them into the field of soil fertility. The practice of sterilizing soils by heat, as well as antiseptics, has been the basis of no small amount of experimentation before the publication of Russell and Hutchinson's work. However, in view of the importance of the latter, it seemed to the writers desirable arbitrarily to divide the investigations into sterilization into two parts, the first treating of those prior to Russell and Hutchinson, and the second of those following. Again for the purpose of a more coherent résumé, soil sterilization may be considered under the two headings of sterilization by heat, and antiseptics, each of which may be further subdivided into three parts, namely: (a) the effect on the physical and chemical condition of the soil; (b) the effect on plant growth; (c) the effect on the biological activities.

(1) See also the *Agricultural Gazette* for November, 1917.

From the review of the bulk of the literature dealing with soil protozoa and soil sterilization, it may be seen that, despite the work already done, comparatively little is known concerning the phenomena involved. Tracing the practice of soil sterilization by heat and disinfectants it is seen that beyond recognizing the fact that crops are increased by such treatment, and that the chemical composition of the soil undergoes an alteration, together with a profound influence on the biological activities, data of a definite and penetrating character are wanting. Among the varied theories advanced to explain the phenomena of soil sterilization briefly summarized in this paper the following demand serious consideration:

1. In Koch's theory of direct stimulation it is maintained that increased crop production is a result of the physiological effect of the sterilizing agency in stimulating plant growth directly. While several investigators have confirmed Koch's con-

clusions, they are nevertheless not widely accepted at the present day.

2. Hiltner and Störmer's theory of "indirect" stimulation emphasizes the bacterial factor. These investigators maintain that there is a bacterial equilibrium in the soil which is altered by the introduction of sterilizing agencies. After the decimation of a vast number of bacteria has occurred, a marked development in numbers ensues, which is responsible for the additional available plant-food causing an increased crop yield. This theory has received the confirmation of many eminent investigators, and is still in vogue, although it hardly completely explains the phenomena observed.

3. Liebscher's view is that soil sterilization may be regarded in the same light as a nitrogenous fertilizer. This is not worked out in very great detail, but finds corroboration in most subsequent investigations.

4. Russell and Hutchinson's conclusions have been considered at some length and have been so frequently referred to that it suffices to say at this point that they contend that sterilization eliminates a biological factor (protozoa) which is one of the limiting factors in soil fertility. This view, although having a profound influence upon all research in this field, has not been accepted by the majority of investigators working along the same lines.

5. Pickering attaches the utmost significance to an alteration in the chemical composition of the soil and proves that this change is largely responsible for increased plant growth.

6. Schreiner and his associates also emphasize the chemical aspect of the problem, and contend that biochemical factors induce a change in the organic matter of the soil, releasing certain beneficial and harmful compounds which change the fertility of the soil.

7. Greig-Smith and others adhere to the bacterio-toxin hypothesis which considers that toxins and nutrients of the soil are alone concerned with the changes that occur when soils undergo sterilization. In his latest paper Greig-Smith contends that the traces of antiseptic remaining in the soil are responsible for increase in bacterial numbers and activities.

It remains unquestionable that considerably more investigation must be carried out before any one of the above theories is accepted in an unqualified manner. Considering the province of soil protozoology in its entirety, it immediately becomes apparent that this science is in its infancy and is urgently in need of suitable methods for making accurate investigation possible. As media, 1 per cent hay infusion, 3 per cent blood meal solution and soil extracts

have proved to be most generally accepted. In staining, picric acid (Kleinenberg) and iron haematoxylin (Delafield's) are most highly recommended. The "Blutkörperzählapparat" and the loop methods are employed for counting. A consideration of the inter-relation of protozoa and bacteria in normal soil remains practically a virgin field, although what little evidence there is obtainable points to the probability that the protozoa limit bacterial activity under conditions especially favorable to protozoan development. Thus, the scope of unsolved problems is considerably broader than the investigations already carried to completion. How to sterilize the soil without altering its chemical composition is an important though baffling problem.

On the bacteriological side much can and needs to be done in determining the differences in the physiological efficiencies of the various groups of organisms in the soil and how they are affected by sterilization. Further, it is imperative to know what role the fungi play in soil fertility, and how they may be taken into consideration when it is desired to have bacteria or protozoa constitute the limiting factor. In addition to an improvement and discovery of methods in soil protozoology it is essential to know more of the life-habits of these organisms, especially as regards the effect upon them of environmental conditions such as (a) the physical and chemical conditions in the soil, together with the effect of (b) air; (c) light; (d) heat; (e) moisture, reaction, gases, etc., as well as the mutual association with other biological factors. Finally, a matter demanding immediate study is the actual observation of pure cultures of protozoa acting singly and collectively upon pure cultures of bacteria, thus furnishing some definite basis for the investigation of soil protozoa as a factor in soil fertility.

With the solution of these problems will come a more profound understanding of the science of protozoology, a science which bids fair to take its place with soil bacteriology as furnishing a portion of the foundation essential for soil fertility investigations.

A list of 337 references to literature bearing on the subject is given in appendix.

620—The Relation of Protozoa to Certain Groups of Soil Bacteria.—HILLS, T. L. (Laboratory of Agricultural Bacteriology, University of Wisconsin) in *Journal of Bacteriology*, Vol. I, No. 4, pp. 423-433. Baltimore, 1916.

The writer has studied the effect of protozoa on certain biological processes of the soil: ammonification, nitrification, and free nitrogen fixation. For this study silt loam soil cultures were used; the moisture content was maintained at as near one-half saturation as possible.

In the soil cultures the presence of protozoa under the conditions of the experiments did not have any noticeable effect, detrimental or otherwise, on the processes of ammonification, nitrification and free nitrogen fixation. In the case of the liquid cultures employed in the study of free nitrogen fixation the conditions were at an optimum for the development of the protozoa and under these circumstances they limited bacterial activity as evidenced by the harmful effect on the fixation of free nitrogen. Under these conditions the protozoa were undoubtedly active in destroying the *Azotobacter* cells. But in the soil cultures conditions were evidently not favourable for the activity of the protozoa as these organisms did not appear to exert any harmful influence on the three soil processes studied.

A bibliography of 6 references is appended.

621—New Irrigation-District Code for Oregon, U. S. A.—CUPPER, PERCY A., in *Engineering News-Record*, Vol. 78, No. 5, p. 254. New York, May 3, 1917.

The Oregon legislature has just enacted a complete irrigation-district code and repealed all laws on this subject hitherto existing in the statute books. A brief summary of the code is given in the Institute Bulletin.

622—Summary of Researches by Messrs. Muntz and Lainé on the Control of Irrigation according to the Physical Properties of Soils.—HITIER, H., in *Bulletin de la Société d'Encouragement pour l'Industrie Nationale*, 116th year, 1st half year, Vol. 127, No. 2, pp. 386-398. Paris, March-April, 1917. (5pp. in Institute Bulletin).

623—A Modified Method of Green-Manuring.—HUTCHINSON, C. M. (Imperial Agricultural Bacteriologist) in *Bulletin No. 63, Agricultural Research Institute, Pusa*, 12 pp. Calcutta 1916. (2 pp. in Institute Bulletin).

It has been noticed that the complete decomposition of a green crop depends upon the incidence of rainfall following its burial. This fact has suggested the avoidance of negative results from green-manuring by carrying out the initial stages of decomposition under artificial conditions. The method practiced is described in the Institute Bulletin, and its advantages summarized.

624—The Trade in Nitrogenous Materials.—I. BERTRAND, A. (Inspector Fiscal de la Propaganda Salitrera), 5 pp. in Institute Bulletin).

Summaries of six articles published in different Bulletins of the *Asociacion Salitrera de Propaganda* are discussed in the Institute Bulletin with illustrative charts.

625—The Effect of Weeds upon Cereal Crops.—BRENCHEY, WINFRED E. Rothamsted Experimental Station) in *The New Phytologist*, Vol. XVI, Nos. 3 and 4, pp. 54-76. London, March and April, 1917.

The practical results of the competition of weeds and crops are well known, but the exact cause of this competition is less obvious. It is common knowledge that the weeds utilize food and water from the soil and, above ground, tend to rob the crop of much of the sunlight essential to full development. Apart from this, however, it has often been questioned whether the weeds may not excrete from their roots some poisonous substance which actually inhibits the growth of the crops, but the whole matter is very undecided.

The present paper gives the results of pot and water-culture experiments carried out at Rothamsted over a period of 4 years with crops and weeds grown in association. The following combinations were tested, the conditions being varied as far as possible to imitate natural conditions except that the pots were protected from birds.

The pots with wheat or weed alone received twice as much seed as was sown in the mixed pots; i.e. two parts of wheat or weed when alone and one part wheat + one part weed when mixed.

I.—POT EXPERIMENTS.—*Papaver Rhoeas*, + *Papaver Rhoeas*, *Papaver Rhoeas* + Wheat, Wheat + Wheat, Wheat + *Alopecurus agrestis*, *Alopecurus agrestis* + *Alopecurus agrestis*, *Brassica alba* + *Brassica alba*, *Brassica alba* + Wheat, Wheat + *Spergula arvensis*, *Spergula arvensis* + *Spergula arvensis*.

II.—WATER-CULTURE EXPERIMENTS.—Wheat + *Spergula arvensis*, Wheat + *Alopecurus agrestis*.

The conditions and results of the various experiments are set out in detail, the total dry weights of the resulting crops of cereal and weed being given in each case. The conclusions are as follows:

There is no evidence, and indeed no indication, that any direct toxic action comes into play.

It is evident that the mere competition of plant with plant, irrespective of species, has much to do with development and that the time and duration of competitive check are the chief factors involved. Purely vegetative competition is more potent than is generally realized. In the experiment all the crop plants were at least 4 or 5 inches apart, and the effects of overcrowding were most obvious. In a field where weeds are at all prevalent, the plants are still more closely placed, and the struggle must be still keener. Even when the weeds are suppressed by cultivating and hoeing, the roots remain in the soil to a large extent, and those of the perennials at least continue functioning in a normal way,

though to a less degree; nevertheless, such suppression of weeds is all to the advantage of the crop, owing to the removal of the aerial competition.

The vital factor in competition is the mere presence of other plants, be they what they may, and, up to a certain limit, two plants cannot make such good individual growth in a given restricted area as can one plant.

In those cases where the same soil was allowed to serve for experiments in successive years a comparison of the dry weights, pot for pot, did not show any evidence that the crop obtained from any individual pot in the first year in any way affected that obtained in the year following. This is a further proof of the absence of toxic effects from the roots. If toxins had been present a pot which carried a relatively small crop in 1915 might have been expected to carry a relatively large one in 1916 and vice-versa, as the large crop would have left a larger supply of toxin in the soil. As no such correlation was proved it seems evident that no toxin capable of remaining unchanged from one season to the other was present in the soils.

630—Reduplication Series in Sweet Peas.—PUNNET, R. C., in the *Journal of Genetics*, Vol. VI, No. 3, pp. 185-193. III tables. Cambridge, April, 1917. (2 pp. in Institute Bulletin).

631—Studies in the Inheritance of Double-ness in Flowers. II. *Meconopsis*, *Althaea* and *Dianthus*.—SAUNDERS, EDITH R., in the *Journal of Genetics*, Vol. VI, No. 3, pp. 165-184. Cambridge, April, 1917.

632—Dry Farmed and Irrigated Wheat.—JONES, J. S., and COLVER, C. W., in *University of Idaho Agricultural Experiment Station* (Departments of Chemistry and Home Economics), *Bulletin* No. 88, 20 pp., 3 tables. Moscow, (Idaho), 1916.

This report on dry-farmed and irrigated wheat covers the completed portion of a general investigation which was commenced in 1907 and which has for its ultimate object the study of the factors which determine the protein content of normally matured wheat.

Gluten is the most important constituent of wheat flour because it makes possible the baking of light bread. The gluten content of flour depends upon the protein content of the wheat from which it was ground and, although flours may vary rather widely in the percentage content of gluten without varying to the same extent in baking value, a reasonable percentage of gluten is absolutely necessary to insure satisfactory results under normal conditions of baking.

There is a widespread feeling among investigators, grain buyers and millers, that the maintenance of quality in wheat de-



pendes primarily upon the maintenance of a high protein content and that the improvement of northwestern grown wheat is intimately connected in some way with a substantial increase of that constituent in the commonly grown varieties. At any rate, those wheats which establish the standards of excellence in milling centres are relatively high in protein and produce flours of relatively high gluten content. Finally, experience teaches that no matter what other objects the wheat breeder may attain, they are for practical purposes almost valueless if, in their attainment, protein content is materially sacrificed.

In the Pacific North West, wheat is cultivated under very variable conditions. Whether or not quality could be correlated in any marked degree with such differences appears to be ascertainable only by the systematic collection of samples through a term of years, and the performance of the necessary analytical work and baking tests. The first report was made in 1911. This one is supplementary to a certain extent, but deals specifically with wheat grown in south Idaho under two radically different systems of farming—dry-farming and irrigation. The samples reported upon were grown and secured for analytical, milling and baking tests in 1912, 1913 and 1914.

Examination of the data secured (table I omitted here) suggests that possibly some varieties of wheat respond more quickly to changes of environment than do others. This seems to be particularly true of Turkey Red and Marquis. Nevertheless, the protein of the average dry-farmed sample was only one per cent. greater and the protein of its flour only seven-tenths per cent. greater than that of the average irrigated sample—differences too small to be strongly affected in the gluten percentage either wet or dry. There were no significant differences between the average dry-farmed and irrigated sample in weight per bushel, in weight per 1000 grains, or in percentage of moisture, ash and fatty matter.

Results of baking tests (table II omitted here) in many ways do not support the commonly held views regarding the relative values for bread making purposes of dry farmed and irrigated wheat. They suggest the possibility of making greater progress toward the raising of flour standards in this state by a systematic insistence on the part of housewives for brands of flour that have been ground from the better varieties of wheat rather than by discrimination in favour of either the dry-farmed or the irrigated product.

Wheat Production in Canada.—NEWMAN, L. H., Secretary of the Canadian Seed Growers' Association, in *International Review of the Science and Practice of Agriculture*, Year VIII, No. 7, pp. 961-967. Rome, July, 1917. (7 pp. in Institute Bulletin).

633—Study on the Digestibility of the Grain Sorghums.—LANGWORTHY, C. F., and HOLMES, A. D., in *United States Department of Agriculture Bulletin* No. 470, pp. 33. Washington, December 22, 1916. (2 pp. in Institute Bulletin).

636—Cultivation of Beans in Germany; Trials to Determine the Best Number of Plants per Pole.—UNSELT, in *Moeller's Deutsche Gaertner Zeitung*, part 7, pp. 51-52. Erfurt, 1917.

The poles with 2 and 3 plants gave equal and maximum results.

637—Fruit Varieties for Maine.—BROWN, BLISS S., in *University of Maine, Agricultural Extension Service, Extension Bulletin* No. 111, pp. 19. Orono, January, 1917.

639—Experimental Work in Italy on the Plum (*Prunus domestica* L. var. —oconomica) and on the Composition of the Oil extracted from the Kernels.—FERUGLIO, D., and BERNARDIS, G. B., in *Bolletino dell' Associazione Agraria Friulana*, 61st Year, Series VII, Vol. 31, pp. 56-75. Udine, December 31, 1916. (3 pp. in Institute Bulletin).

The concluding paragraphs of this article in the Institute Bulletin are as follows:

In districts where the plum is largely grown, the kernels might well be used for the extraction of the oil, the residue being employed as a feeding cake.

Numerous analyses made by the writers have shown that this oil is composed chiefly of the glycerides of oleic acid, those of linoleic acid and palmitic acid figuring in only a small proportion. Analysis has also shown the presence of a very feeble quantity of an unidentified phytosterin (vegetable cholesterin).

The oil shows a certain number of constants which only differ slightly from those of olive oil, consequently on mixing it with this latter in a certain proportion its presence is not easily detected. Owing to its properties and organoleptic qualities, it can be put to various uses and may attain quite favorable prices on the market.

641—Cultivation of the Vine by the Desbois Method.—GRANDCLÉMENT in *La Vie agricole et rurale*, Year 7, No. 18, pp. 315-317. Paris, May 5, 1917. (2 pp. in Institute Bulletin).

## LIVE STOCK AND BREEDING

644—Anaphylaxis in Cattle and Sheep, Produced by the Larvae of *Hypoderma bovis*, *H. lineata* and *Oestrus Ovis*.—HADWEN, SEYMOUR and BRUCE, E. A., in *Journal of American Veterinary Medical Association*, Vol. LI, New Series, Vol. 4, No. 1, pp. 15-44, 15 plates. Ithaca, N.Y. April, 1917.

Anaphylaxis has been described by Muir and Ritchie (1910) as development under certain circumstances in an animal of hypersensitiveness to foreign albuminous materials which in themselves are not essentially toxic. The common feature is that repeated injections of certain substances in sub-toxic or non-toxic doses—a suitable interval of time elapsing between the injections—may be followed by markedly toxic or even fatal symptoms. The writers have obtained such reactions in cattle, sheep and small animals by injecting them with extracts of the larval forms of *Hypoderma lineata*, *H. bovis* and *Oestrus ovis* from their own bodies. They have also observed natural cases of anaphylaxis where, owing to injury, the larvae have been ruptured subcutaneously *in loco*. As extracts of *Hypoderma* larvæ contain little or no toxic material the reaction is regarded as being due to the development of hypersensitiveness in the host to the protein material of its parasite.

Anaphylaxis may be either "acute" or "chronic". The symptoms in the first case were immediate, the first noticeable sign being an extremely tired look, succeeded almost immediately by salivation, tears and defaecation, then by signs of asphyxia and death. In the "chronic" form the symptoms were a little less rapid and not so severe, in addition there were œdemas, especially of the eyelids and anus, and marked irritation of the skin.

Small animals were sensitized with warble extracts and showed signs of anaphylaxis following the second injection.

Eye and other local reactions were obtained with extracts applied to the mucous membranes. In cattle the reaction was specific for extracts of *Hypoderma*, and in a horse for *Gastrophilus*.

It would appear probable that similar reactions will be obtained in other animals with their own parasites.

645—A Study of Hemorrhagic Septicaemia, Observations in Sheep and in Mouflon-Sheep Hybrids.—MORI, NELLO Director of the Naples Experimental Station for Infectious Diseases of Livestock in *Annali delle Stazioni Sperimentale per le malattie infettive del bestiame*, Vol. III, part II, 33 pp. Naples, Year 1916. (3 pp. in Institute Bulletin).

646—An Intradermal Test for Bacterium pullorum Infection in Fowls.—WARD, ARCHIBALD R., and GALLAGHER, A., in *U. S. Dept. of Agriculture*, Bulletin No. 517, 15 pp. Washington, February 16, 1917. (2 pp. in Institute Bulletin).

647—Relation between the External Body Measurements, the Live Weight and the Net Weight on the One Hand, and the Weight of the Heart and the Lungs on the Other Hand, in Cattle of the Schwytz and Parmesan Breeds; Investigations carried out in Italy.—BRENTANA, DOMENICO, in *Il Moderno Zootro*, Series V., Year VI, No. 3, pp. 61-79. Bologna, March 5, 1917. (2 pp. in Institute Bulletin).

The modern works on the relation between the body measurements, live weight, etc., on the one hand and the weight of the heart and the lungs on the other, in domestic animals and in man, are summarily reviewed. The author then describes his own experiments at the public abattoir of Parma on 84 cattle, giving, in 4 tables, the results of his measurements and calculations. The minimum, maximum and average figures obtained are summarized in an appended table. In the Institute article the author's conclusions are summarized.

648—The Mineral Metabolism of the Milch Cow.—FORBES, B., BEAGLE F. M. FRITZ, C. M., MORGAN, L. E., and RHUE, S. N., in *Ohio Agricultural Experiment Station Bulletin* No. 295, pp. 323-348. Wooster, Ohio, April, 1916. (4 pp. in Institute Bulletin).

649—By-Products from the Manufacture of Tin Plate.—*The Board of Agriculture Ohio*, Vol. VII, No. 4, pp. 65-66. Columbus, Ohio, Nov., 1917.

650—A Contribution to the Bacteriology of Silage.—SHERMAN, J. M., (Bacteriological Laboratories of the Pennsylvania State College and Agricultural Experiment Station). *Journal of Bacteriology*, Vol. I, No. 4, pp. 445-451. Baltimore, 1916.

651—Effects of Feeding Cottonseed Products on the Composition and Properties of Butter.—ECKLES, C. M., and PALMER, L. S., in *University of Missouri College of Agriculture, Agricultural Experiment Station Research Bulletin* No. 27, pp. 1-44. Columbia, Missouri, December, 1916.

652—Pig Feeding Experiments on the Model Farm of Dikopshof, Germany.—RICHARDSEN, A., in *Landwirtschaftliche Jahrbucher*, Vol. 49, Pt. 3-4. Berlin, 1916. (3 pp. in Institute Bulletin).

653—Temperature Experiments in Incubation.—PHILIPS, A. G., in *Purdue Agricultural Experiment Station Bulletin* No. 195, Vol. XIX, December 1916.

The details of the observations are given in a set of 21 tables. The conclusions drawn are as follows:

1. A temperature of 101-102-103 degrees the first, second and third weeks respectively, using a standing thermometer on a level with the top of the eggs but not touching them, will prove very satisfactory in the artificial hatching of hens' eggs.

2. A temperature slightly above or below 101-102-103 degrees will not influence the hatch one way or another.

3. A temperature of 103-104-105 F., degrees is too high and will injure the hatch greatly.

A temperature of 102-103-104 degrees is a little high for successful incubation.

5. There seems to be little difference in number of chicks hatched between machines run at 100-101-102 degrees and machines run at 101-102-103 degrees. This means that at such low temperatures a variation of one degree or more will have little influence.

6. Operators of incubators should endeavour to hold down temperatures below common practice, rather than allow them to rise above it.

7. Brown and white eggs need the same temperature.

8. Brown eggs are no warmer or cooler than white eggs.

9. Brown eggs have a tendency to produce poorer fertility, more dead germs, more chicks dead in shell and fewer chicks than white eggs. No reason from the

standpoint of incubation can be given for this peculiarity.

10. Under ordinary conditions, it is reasonable to expect white eggs to be 90 to 92 per cent. fertile and hatch 75 per cent. of the fertile eggs. Brown eggs will run 2 per cent less in fertility and 12 per cent. to 15 per cent. less in hatchable fertile eggs.

11. Touching thermometers average slightly higher temperatures than standing thermometers. Such differences have no influence on the hatch.

12. As the chicks develop in the eggs, they give off heat tending to equalize the temperature in all parts of the machine. This is demonstrated by the hanging thermometer. This thermometer runs at a uniform temperature for the three weeks but the temperature at the level with the eggs starts about 2.5 degrees lower and rises until it comes within one degree of the hanging thermometer temperature on the twenty-first day.

13. A temperature with a standing thermometer of 100.5 degrees the first week, 101.5 degrees the second and 102.5 degrees the third week compares well in temperature and hatching results with a hanging thermometer temperature of 103 degrees for three weeks.

654—Spore-Forming Bacteria of the Apiary.—MCCRAY, ARTHUR H., *Apicultural Assistant, Bureau of Entomology, United States Dept. of Agriculture* in *Journal of Agricultural Research*, Vol. VIII, No. 11, pp. 399-420, figs. 6, Plates II. Washington, D.C., March, 12, 1917.

## FARM ENGINEERING

656—The Encouragement of Mechanical Cultivation in Italy and France.—I. *Bollettino dei Ministeri per l'Agricoltura, per l'Industria, il Commercio ed il Lavoro*, Year 16, Vol. I, Parts 7 and 8, pp. 300-302. Rome, April 1 and 16, 1917.—II. *Feuille d'Informations du Ministère de l'Agriculture*, Year 22, No. 19, pp. 6-7. Paris, May 8, 1917.

ITALY: By decree of February 18, 1917, the Minister for Agriculture has issued the following order:

Subsidies to be granted to agricultural societies and syndicates for the purchase of tractors for immediate use on the land may amount to 30 % of the cost price of the machines, including ploughs and accessories.

Those organizations that buy at least 5 tractors for general use within the limits of a province, may receive a supplementary premium of 10 % of the cost price.

Subsidies to private agriculturists for the purchase of tractors for immediate use, may amount to not more than 20 % of the sale price, including ploughs and accessories.

Requests for subsidies should be directed to the provincial Commissions, and should include, besides technical details of the tractors and the price, the undertaking to buy the tractor within a limited time. The provincial Commissions will transmit the requests, together with the reasons for their approval, to the Ministry for Agriculture.

II.—FRANCE.—The Ministry for Agriculture has published the subsidies granted, in 1916, to the various syndicates, societies, communes and departments which are interested in mechanical cultivation, so as to enable them to purchase agricultural tractors and motors. The subsidies, ranging from \$425 to \$15,958, make a total of \$41,360. The three national Schools of



Agriculture have received, for the same purpose, subsidies amounting to \$4,000.

657—The Donalies Patent Mechanism for Attaching One or More Implements to a Balance Plough.—*Deutsche Landwirtschaftliche Presse*, Year 44, No. 27, p. 246, 5 fig. Berlin, April 4, 1917. (2 pp. in Institute Bulletin.)

659—New Stump Burner for Logged-Off Lands.—LE ROY W. ALLISON, in *Engineering Record*, Vol. 75, No. 13, pp. 495-496, 1 fig. New York, March 31, 1917.

The Hubbard stump burner consists of an adjustable steel hood of two principal sections to form a base and top, designed to be placed over the stump.

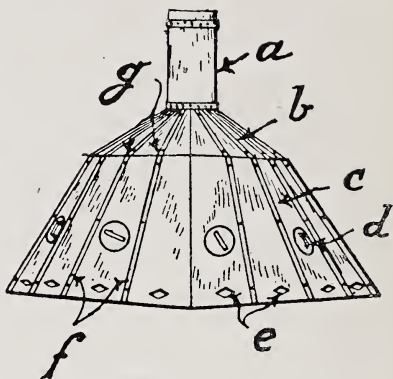
By means of draught tubes, placed around and near the base of the burner, the need for any blower or other artificial draught device is eliminated.

The lower section panels are made from steel sheets and are 11 in. wide at the top, 19 in. at the base and about 48 in. high. On one edge of each panel a  $\frac{1}{2}$  in. lip is bent at an angle slightly in excess of  $90^\circ$ , while the other edge is made in the form of an inverted U,  $\frac{1}{4}$  in. wide and  $\frac{1}{2}$  in. deep. Bolt holes are punched near the bottom, middle, and top of its joint for the field connections. A 2-in. hole is provided in the centre of each of the lower panels near the base for the insertion of the draught tubes made of  $\frac{1}{2}$  in. iron pipe. A damper, pivoted on a single rivet, covers the hole when the draft tube is not used. Every alternate panel has also an 8 in. hole for observation purposes.

The upper section is composed of sheet steel panels, similar in shape and design to the lower panels. A  $1\frac{1}{2}$  in. overlap is provided to allow for joining the upper and lower sections by means of V-shaped tie bolts.

The smokestack, of sheet metal, is adjustable, and is supported by a metal band at the base and top of the cylinder. The size of the smokestack varies according to the number of panels used to make up the burner. A 12 in. stack has been found in practice the best size to use with a sixteen-panel hood.

In erection the lower panels are bolted together in groups of 2 or 3, to facilitate handling and moving. The different groups are then placed round the stump



- a = Smokestack.
- b = Upper panels of No. 22 steel.
- c = Lower panels of No. 18 steel.
- d = Observation holes.
- e = Draught tube holes with damper.
- f = Lips and u-shaped edges of panels.
- g = V-shape tie bolts for fastening upper to lower panels.

and the remaining connections made with heavy cotter pins. The roof section is bolted together and the stack is attached before being fastened to the bottom panels. Before operating, dirt, etc., is cleared away sufficiently to allow kindling of a good fire. The fire is started through the observation openings and the draught pipes are inserted so as to give the best draught. The draught increases as the temperature rises under the hood, being augmented by feeding logs to the fire as needed after kindling.

This burner will consume stumps of from 3 to 5 ft. in diameter in 24 hours, while 6 to 7 ft. stumps require 30 or 40 hours.

660—The "Jahn" Curved Knife for Root-Pulping Machines.—*Deutsche Landwirtschaftliche Presse*, Year 44, No. 28, 254-255, 3 figs. Berlin, April 7, 1917. (2 pp. in Institute Bulletin).

661—The Schilde "Universal Drier".—PAROW, in *Zeitschrift für Spiritusindustrie*, Year 40, No. 2, p. 13, 9 fig. Berlin, January 11, 1917. (4 pp. in Institute Bulletin).

## RURAL ECONOMICS

665—Financial Statement of the Delaware Experiment Station Peach Orchard—McCUE, C. A., in *Delaware College Agricultural Experiment Station, Bulletin*

No. 113, pp. 1-21. Newark, Delaware, June, 1916. (3 pp. in Institute Bulletin).

## AGRICULTURAL INDUSTRIES

669—Simple Method for Estimating the Degree of Bolting of Wheat Flour.—PERRACINI, in *Le Stazioni Sperimentali Agrarie Italiane*, Vol. L, Pts. 1-4-5, pp. 250-252. Modena, 1917.

674—On the Interpretation of the Results of Analysis of Tomato Preserve.—GUARNIERI, P., in *Le Stazioni Sperimentali Agrarie Italiane*, Vol. L, Pts. 3-4-5, pp. 245-249. Modena, 1917. (2 pp. in Institute Bulletin).

676—Pepsin in Cheesemaking.—STEPHENSON, C., in the *Journal of Agriculture, New Zealand Department of Agriculture, Industries and Commerce*, Vol. XIV, No. 1, pp. 32-33. Wellington, January 20, 1917.

The present shortage of rennet is a serious menace to the New Zealand cheese industry. Experiments in the use of pepsin as a total or partial substitute for rennet were, therefore, made by the Dairy Division. The results obtained were entirely satisfactory.

In order to make a thorough comparison between the action of the pepsin and that of the rennet, the same class of milk was used in each experiment.

As soon as the milk reached the factory it was divided equally and poured into 3 vats. The milk in vat No. 1 was coagulated with pepsin, that in vat No. 2 with a mixture of pepsin and rennet, and that in vat No. 3 with rennet only. The pepsin was used at the rate of  $2\frac{1}{2}$  drams per 1000 lbs. milk, and the rennet at the rate of  $3\frac{1}{2}$  oz. per 1000 lbs. milk.

The curd in vats 2 and 3 was ready for cutting in 30 minutes, while that in vat 1, in which pepsin only was used, required 10 minutes longer before it was firm enough for cutting. No difference in the development of acidity was observed between the curds of any of the vats. The weight of cheese from each vat was practically the same.

The whey in vat No. 1, coagulated with pepsin, had a rather lower fat content than that of vats No. 2 and 3. This may

be attributed to the slowness of the coagulation. This experiment, as well as later tests, shows that the action of pepsin when used alone is somewhat slow, even if it is added in larger quantities.

For this reason a mixture of pepsin and rennet is strongly recommended. Before being added to the rennet, the pepsin should be dissolved in 20 times its own weight of water; the mixture should then be diluted with about half a bucketful of cold water before being stirred into the milk. If warm water is used its temperature should not be above  $100^{\circ}$  to  $105^{\circ}$  F., as the pepsin will, in this case, quickly lose its strength. Pepsin solution kept for any length of time becomes so weak as to be practically useless, and should always be prepared afresh 15 to 20 minutes before use.

The present price of pepsin is \$4.40 to \$4.60 per pound, and that of rennet \$14.60 to \$15.80 per gallon. As 1 lb. of pepsin is practically equal to 1 gallon of rennet, its use presents distinct economic advantages.

The cheeses made with pepsin were of good quality, and no difference could be observed between them and those coagulated with rennet.

677—Preservation of Timber.—*The Colonial Journal*, Vol. 10, No. 4, pp. 306-308. London, April, 1917.

The sap which exists in the cells and vessels is the chief cause of the decay of timber, especially that which is put in the ground.

A brief survey of the processes used to preserve timbers is given. Special attention should be called to a new method, called "Powellising". By this method the green timber is placed in a bath containing a substance with a boiling point well above that of water, for example molasses. This is heated till the molasses is hot enough to boil off the moisture in the green timber. The bath is then allowed to cool. If white arsenic be added, then the molasses absorbed impregnates the wood with this preservative when cooling.

## PLANT DISEASES

678—Decree regarding the Organization of the Phytopathological Service in Italy.—*Gazzetta ufficiale del Regno d'Italia*, Year 1917, No. 144, p. 2852. Rome, June 19, 1917. (2 pp. in Institute Bulletin).

679—Decree by the Minister of Agricul-

ture, in Italy, Regulating the Importation of Living Plants, Portions of Plants, Seeds and other Plant Products.—*Gazzetta ufficiale del Regno d'Italia*, Year 1917, No. 111, p. 2379. Rome, May 11, 1917.

682—Practical Means of Control of the

"Oidium" of the Oak.—DANIEL, LUCIEN, in *Comptes rendus hebdomadaires des séances de l'Académie des sciences*, Vol. 164, No. 25 (June 18, 1917), pp. 957-959. Paris, 1917.

684—*Fusarium tracheiphilum* Parasitic on Soy-Bean (*Soja max*) in North Carolina. —CROMWELL, RICHARD O., in *Journal of Agricultural Research*, Vol. VIII, No.

11, pp. 421-440, Fig. 1, Pl. 95. Washington, D.C., March 12, 1917.

690—Invasions of Locusts in Uruguay, in 1915 and 1916.—REPUBLICA ORIENTAL DEL URUGUAY, MINISTERIO DE INDUSTRIAS. DEFENSA AGRICOLA. *Memoria de los trabajos realizados contra la langosta. Invasion del 1915-1916*. 1 vol. in-16, 444 pp., 36 maps, 28 figs. Montevideo, 1916.

## AGRICULTURAL ECONOMICS

### AGRICULTURE AND THE WAR IN GREAT BRITAIN

The existing provisions as to the cultivation of lands are based on an amendment, passed on 13 March, 1917, of Regulation 2 M of the Defence of the Realm Regulations. This amendment gives certain powers as regards England and Wales to the Board of Agriculture and Fisheries, and as regards Scotland to the Board of Agriculture for Scotland, which bodies exercise their powers "after such consultation with the Food Controller as may be arranged" and where they "are of opinion that, with a view to maintaining the food supply of the country, it is expedient."

They may "enter on and take possession of any land which in their opinion is not being so cultivated as to increase, as far as practicable, the food supply of the country, and, after entry thereon, do all things necessary or desirable for the cultivation of the land or for adapting it for cultivation; and for such purposes enter on and take possession of any buildings on the land or convenient for such purposes". They may "take possession of any machinery, implements of husbandry or plant . . . , or any farm produce, stock or animals . . . required for the cultivation of land or the increase of the food supply of the country". They may "by notice served on the occupier of any land require him to cultivate the land in accordance with such requirements as the Board may think necessary or desirable . . . , and by notice served on the tenant of any land, which or part of which in the opinion of the Board is not being so cultivated as to increase as far as practicable the food supply of the country, determine his tenancy of the land . . . ; and after entry on any land arrange for its cultivation by any other person whether by contract of tenancy or otherwise. An occupier of land may, with a view to maintaining the food supply of the country, submit to the Board a scheme for the cultivation of the land in a manner not consistent with the contract of tenancy of the land, and the Board, if satisfied that the adoption of the scheme is necessary or de-

sirable for the maintenance of the food supply, may direct that the land shall be cultivated in accordance with the scheme, subject to any modifications which the Board may think fit to make therein". "If the Board at any time withdraw from possession of any land of which possession has been taken under this regulation, they may recover from the person then entitled to resume occupation of the land such amount as represents the value to him of all acts of cultivation or adaptation for cultivation executed by the Board". "The Board may with respect to any land . . . authorise any person or any body constituted by the Board to exercise on behalf of the Board any powers of the Board under this regulation and prescribe the procedure of any such body."

As regards England and Wales this regulation was completed by an order of the Board of Agriculture and Fisheries which defined the powers of the War Agricultural Executive Committees. At present in England and Wales the machinery for the intensification of agricultural production consists in each county of a War Agricultural Committee, the directing body, on which depends a War Agricultural Executive Committee, which leaves certain duties to sub-committees.

These sub-committees consist of from four to seven members experienced in agriculture who are expected to meet weekly or at least fortnightly. They report to the County Committee any land which is not producing its full quota of food and suggest the necessary action. They also report on the labour shortage and assist farmers to obtain seed and manures and the use of horses and implements. In short the business of the sub-committee is to help the farmers in every possible way.

On the advice given in a circular letter issued by the Director General of the Food Production Department further sub-committees were formed in each county, in particular a Labour Sub-Committee, a



Machinery Sub-Committee and a Supplies Sub-Committee.

The application of the Cultivation of Lands Order is the most important duty of the County Executive Committees. In the first place they send recommendations to the farmers who generally agree to carry out the suggestions. If a farmer is unable to fulfil requirements of the Executive it becomes necessary to supplement his efforts

or to replace him. When all else fails it becomes necessary to use compulsory powers. Reports show that the Executive committees are doing their work thoroughly. Advice and persuasion are being used in numberless cases and where these fail most committees have no hesitation in applying their more drastic powers (Summarized from the *International Review of Agricultural Economics*, August, 1917, pp. 79-84).

## CONTENTS OF THE INSTITUTE ECONOMIC BULLETIN

In addition to those already dealt with herein, the following is a list of the more important subjects treated in the August number of the *International Review of Agricultural Economics*. Persons inter-

ested in any of the articles in this list may obtain the original bulletin on application to the Institute Branch, so long as the supply for distribution is not exhausted.

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## AGRICULTURAL STATISTICS

### THE WHEAT SITUATION, PRESENT AND PROSPECTIVE

BY T. K. Doherty, LL.B.

The situation as described in THE AGRICULTURAL GAZETTE of September last (pp. 839-842) (1) has very materially changed as the result of further information since received. Hence the following presentation of data which refers only to the countries which are open to the world's

commerce. In dealing with production the countries are grouped for the purpose of facilitating analysis. First the consumptive requirements are considered, then the supplies in exporting countries together with actual and prospective shipments.

#### GROUP 1.—SOUTH MEDITERRANEAN AND THE CAPE

COUNTRIES	1917	1916	Five Years' Average, 1909-13
	Bush.	Bush.	Bush.
Cyprus and Malta.....	2,400,000	2,400,000	2,400,000
Egypt (a).....	29,835,000	36,543,000	34,814,000
Tunis (a).....	6,963,000	11,023,000	6,230,000
The Cape.....	2,400,000	2,400,000	2,400,000
Totals.....	41,598,000	52,366,000	45,844,000

(a) Official figures.

(1) That article was republished practically in full as U.S. Food Administration Bulletin, No. 351.

Tunis and the Cape will probably be self-sustaining. Malta will remain an importer, and Egypt, with a decrease of five millions from average production will probably need to import an equal amount. Egypt's average pre-war requirements, including its own production, were 42,623,000 bushels. Average import was 7,716,000. Estimating in this group also for the wheat requirements of Mesopotamia and Jerusalem with the occupying armies, probably at least 10 million bushels will be reached.

## GROUP II.—NEUTRAL COUNTRIES OPEN TO THE WORLD'S COMMERCE

COUNTRIES	1917	1916	Five Years' Average 1909-13
	Bushels	Bushels	Bushels
Denmark.....	4,500,000(b)	6,026,000	5,344,000
Netherlands....	3,453,000(a)	4,710,000	4,896,000
Norway.....	241,000(a)	305,000	306,000
Spain.....	141,000,000(a)	152,330,000	130,447,000
Sweden.....	7,497,000(a)	8,979,000	7,769,000
Switzerland.....	4,556,000(a)	4,053,000	3,314,000
Totals.....	161,247,000	176,403,000	152,076,000

(a) Official figures.

(b) Estimated.

An analysis of this group shows (1) that the 1917 production exceeds the pre-war

average by slightly over 9 million bushels; (2) that the production of 1916 was 24 million bushels in excess of that average, 22 of it belonging to Spain alone; (3) that the pre-war import requirements of the group were 62 millions; (4) that the actual imports in 1916 were 69,812,000 bushels. The minimum import supplies which they may be expected to try to secure are estimated in millions of bushels as follows: (pre-war average import indicated in parenthesis); Holland, 15 (22.0); Scandinavia, 13 (16.9); Switzerland, 15 (16.9); Spain 5 (6.25); furnishing a total requirement for the group of 48 million bushels. This probably must be cut by 10 millions

## GROUP III.—IMPORTING ALLIED COUNTRIES OPEN TO THE WORLD'S COMMERCE

COUNTRIES	1917	1916	Five Years' Average, (1909-13)
	Bushels	Bushels	Bushels
France (a).....	144,150,000	204,910,000	317,639,000
Greece.....	4,000,000	8,000,000	4,320,000
Great Britain (a)...	59,717,000	56,948,000	58,043,000
Ireland (a).....	4,347,000	2,827,000	1,597,000
Italy (a).....	140,000,000	176,531,000	183,336,000
Portugal.....	7,440,000	8,000,000	7,440,000
Belgium.....	9,000,000	11,917,000	14,896,000
Totals.....	368,654,000	469,133,000	587,271,000

(a) Official figures.

The analysis of this group shows (1) that the 1917 production is smaller by 218,617,000 bushels than the pre-war average, the deficit being almost wholly accounted for by France's 173 million and Italy's 43 million decrease; (2) that the decrease from 1916 is about 100 millions; (3) that the average pre-war total supplies of this group, including their own produc-

tion, were 961,459,000; (4) that with their 1917 production of only 368,654,000 their corresponding import requirements now would be 592,805,000 which they cannot hope to secure. This is more than was ever exported to the whole of Europe in any one year.

France's pre-war average consumption of wheat was 361 million bushels. Deducting from this total its domestic production in 1917, we find that her normal needs for the current year would be 217 millions. In estimating a prospective import during the current year of 180 millions, allowance is made for an economy of 37 millions over the pre-war period.

Italy's pre-war consumption was 236 million bushels. With a production of 140 millions in 1917 her normal import need would be 97 millions. Reducing this by 17 millions absolute needs are estimated at 80 million bushels. These results for the ally group are tabulated as follows:

	Pre-war Consumption	Normal Import Need 1917-18	Estimated Minimum Needs 1917-18
France.....	361,364,000	217,214,000	180,000,000
Italy.....	236,614,000	96,614,000	80,000,000
Great Britain.....	275,693,000	211,629,000	180,000,000
Greece.....	.....	.....	20,000,000
Portugal.....	.....	.....	3,000,000
Belgium.....	64,000,000	55,000,000	24,000,000
Group I.—Malta, Egypt, Mesopotamia, Jerusalem.....	.....	.....	10,000,000
Groups I and III.—Total Allied Requirements.....	.....	.....	497,000,000
Group II.—Five European Neutrals.....	.....	.....	48,000,000
Outside of Europe, including 15 millions to Brazil.....	.....	.....	50,000,000
World's requirements, 1917-18.....	.....	.....	595,000,000

## EXPORT SITUATION

## GROUP IV.—EXPORTING COUNTRIES OPEN TO THE WORLD'S COMMERCE

COUNTRIES	1917	1916	Five Years' Average, 1909-13
	Bushels	Bushels	Bushels
United States.....	650,828,000	636,308,000	636,694,000
Canada.....	231,730,000	262,781,000	197,118,000
Total North America.....	882,558,000	899,089,000	883,812,000
Argentina.....	210,000,000(a)	70,225,000	147,071,000
India.....	379,307,000	318,005,000	360,550,000
Australia.....	115,000,000(b)	152,090,000	90,499,000
Total three countries.....	704,307,000	540,320,000	598,120,000
New Zealand.....	7,000,000	5,000,000	7,070,000
Uruguay.....	6,500,000	5,390,000	6,519,000
Chili.....	14,000,000	12,000,000	14,000,000
Algeria.....	28,980,000	29,152,000	34,998,000
Total four countries(c).....	56,480,000	51,542,000	62,587,000
Grand totals(d).....	1,643,345,000	1,490,951,000	1,544,519,000

(a) Estimated on the basis of a yield of 12 bushels per acre. This compares with an average yield of 11 bushels during the best single year of the pre-war five year average. There was serious frost damage reported in the first half of November, so merchantable quantities will be reduced.

(b) Broomhall December 4th, 1917.

(c) With present shipping facilities the prospective exports of these four countries are negligible. Algeria on the five year average exported four million bushels, but its production in 1917 has dropped nearly six millions below the average.

(d) The production in 1917 is 99-million bushels larger than the five year average, and 153 larger than the production of 1916; but 140 out of the 153 is accounted for by Argentina's extraordinary crop.

The preceding table affords a basis upon which to estimate what stores of wheat are available in the producing countries from which to supply the food requirements. Reliable information can only come from actual exports as they become available. The deductions made from the preceding data are here presented tentatively. This

is done in the following table which shows the total production of the chief exporting countries for the year 1917, the actual exports for the year 1916-17 and the probable exports for 1917-18.

The estimates for the coming year are based upon only such quantities as shipping facilities will probably allow:

COUNTRIES	Carry-over, August 1st, 1917	Crop 1917	Exports 1916-17	Prospective Exports, 1917-18
United States.....	22,000,000	650,828,000	201,032,000	140,000,000
Canada.....	26,000,000	231,730,000	174,600,000	185,000,000
Argentina (December 1917 crop).....		210,000,000	55,376,000	100,000,000
Australia (December 1917 crop).....	156,000,000	115,000,000	70,632,000	85,000,000
India (April 1917 crop).....		379,000,000	52,504,000	65,000,000
Totals.....	204,000,000	1,586,558,000	554,144,000	575,000,000

There is a good deal of optimism in the foregoing forecast of shipments. So that the difficulties in practice may be realized readers must be informed that Mr. Broomhall, reporting these shipments week by week for the first seventeen weeks of this season to December 1st shows them to be about 92 million bushels for North America and Argentina. The shipments of India and Australia for the full past year formed 22 per cent of the whole. Adding the quota of India and Australia on the same basis we would get a total of about 120 million bushels shipped in the seventeen weeks, compared with 160 for the same period last year. However, shipments of considerable importance will begin from Buenos Aires in January and probably attain their usual maximum in February. The British Government, it has been said, has made special arrangements for handling

the crop promptly.

Owing to shortage of shipping and comparative distances, it may not be safe to count on Australia and India doing much better than the past year.

During August, September, October and November, with an exceptionally large shipment in the latter month Canada shipped nearly 71 million bushels compared with 71 millions shipped last year. For the first three months, however, United States are over 30 million short of the shipments in the same months last year. Since our last report on the situation the U.S. official estimate of production has been reduced by nearly 10 millions. It will therefore be all the more difficult to realize the export of 140 millions credited to the United States.

Viewed from the North American standpoint the situation presents itself thus:



	United States	Canada
Crop of 1917.....	650,828,000	231,730,000
Carry-over Aug. 1st, 1917.....	22,000,000	26,000,000
Total supply.....	672,828,000	257,730,000
Prospective exports.....	140,000,000	185,000,000
Balance.....	532,828,000	72,730,000
Deduct for seed.....	85,000,000	28,000,000
Left for food and carry-over.....	447,828,000	44,730,000

In order to realize this result Canada would have to economize from 8 to 10 million bushels and have no carry-over on Sept. 1st; the United States, however, would have to cut down their rations by 42,000,000 bushels from their minimum consumption last year which was at the rate of  $4\frac{3}{4}$  bushels per capita.

### PRODUCTION OF BARLEY AND OATS IN THE NORTHERN HEMISPHERE

COUNTRIES	1917	1916	Five Years' Average, 1911-15
<i>Barley:—</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>
Spain.....	76,747,000	86,864,000	74,119,000
France.....	39,557,000	38,268,000	42,758,000
England and Wales.....	46,163,000	43,174,000	46,924,000
Scotland.....	6,208,000	5,393,000	6,868,000
Ireland.....	7,872,000	6,537,000	7,264,000
Italy.....	7,422,000	10,109,000	9,611,000
Luxemburg.....	156,000	125,000	95,000
Norway.....	3,000,000	3,592,000	2,942,000
Netherlands.....	2,573,000	2,372,000	3,257,000
Sweden.....	12,263,000	14,621,000	14,492,000
Switzerland.....	712,000	620,000	490,000
Canada.....	51,684,000	42,770,000	47,806,000
United States.....	203,975,900	182,309,000	197,211,000
Japan.....	76,505,000	95,903,000	99,175,000
Algeria.....	32,289,000	35,970,000	39,050,000
Egypt.....	13,598,000	11,987,000	11,865,000
Tunis.....	8,267,000	4,914,000	7,000,000
Totals.....	588,991,000	585,528,000	610,927,000
<i>Oats:—</i>			
Spain.....	31,104,000	30,272,000	28,311,000
France.....	223,462,000	260,818,000	230,753,000
England and Wales.....	99,719,000	95,536,000	88,656,000
Scotland.....	46,617,000	41,547,000	42,313,000
Ireland.....	87,755,000	58,685,000	61,000,000
Italy.....	31,896,000	24,543,000	32,192,000
Luxemburg.....	1,897,000	2,560,000	2,938,000
Norway.....	11,112,000	14,809,000	11,023,000
Netherlands.....	17,500,000	18,841,000	19,552,000
Sweden.....	66,593,000	87,614,000	72,536,000
Switzerland.....	4,331,000	6,348,000	4,678,000
Canada.....	398,570,000	410,211,000	399,648,000
United States.....	1,587,235,000	1,252,837,000	1,230,499,000
Algeria.....	17,183,000	12,368,000	12,028,000
Tunis.....	3,761,000	1,362,000	2,847,000
Totals.....	2,623,735,000	2,318,351,000	2,288,974,000

The production of barley, although slightly more than last year, is nearly 22,000,000 bushels less than the five years' average. The total production of the importing allied countries, France, Great Britain and Ireland and Italy, is 107,000,000 bushels against 103,000,000 in 1916 and a five years' average of 113,000,000. The average imports of these countries during the five grain years coinciding with the production years 1911-15 amounted to 52,000,000 bushels. The exporting countries, Canada and the United States during the same period produced an average of 245,000,000 bushels of barley and exported

an average of 24,000,000 bushels. In the grain year 1915-16, however, these countries exported 38,000,000 bushels, and the large crop of 256,000,000 bushels produced by the two countries this year seems to assure a sufficient supply of the cereal.

The world's total for oats is 305,000,000 bushels greater than that of last year, 335,000,000 greater than that of the five years' average. The total production of France, Great Britain and Ireland and Italy is 489,000,000 bushels against 481,000,000 in 1916 and a five years' average of 505,000,000. Thanks to the record crop in the United States the total

production of that country and Canada is 317,000,000 bushels higher than in 1916 and 350,000,000 higher than the five years' average. The average exports from these two countries during the grain years

1911-12 to 1915-16 amounted to 69,000,000 bushels. During the same period the average imports of the three allied importing countries amounted to 102,000,000 bushels.

### PRODUCTION OF POTATOES AND SUGAR BEETS IN THE NORTHERN HEMISPHERE

COUNTRIES	1917	1916	Five Years' Average, 1911-15
<i>Potatoes</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>
Great Britain.....	145,779,000	113,327,000	139,860,000
Italy.....	55,116,000	54,278,000	60,464,000
Luxemburg.....	5,925,000	2,971,000	6,544,000
Norway.....	27,733,000	29,189,000	23,700,000
Netherlands.....	39,859,000	38,490,000	97,989,000
Sweden.....	64,599,000	54,972,000	63,755,000
Switzerland.....	36,376,000	18,372,000	24,912,000
Canada.....	79,892,000	63,297,000	76,589,000
United States.....	442,336,000	286,953,000	362,910,000
Totals.....	947,615,000	711,849,000	856,723,000

<i>Sugarbeets</i>	<i>Tons</i>	<i>Tons</i>	<i>Tons</i>
Netherlands.....	1,826,000	1,892,000	2,106,000
Sweden.....	797,000	1,034,000	953,000
Switzerland.....	15,000	22,000	24,000
Canada.....	118,000	71,000	161,000
United States.....	7,621,000	6,228,000	5,839,000
Totals.....	10,377,000	9,247,000	9,083,000

### YIELD PER ACRE OF CEREALS

COUNTRIES	WHEAT			BARLEY			OATS		
	1917	1916	Five Years' Average, 1911-15	1917	1916	Five Years' Average, 1911-15	1917	1916	Five Years' Average, 1911-15
	<i>Bus.</i>	<i>Bus.</i>	<i>Bus.</i>	<i>Bus.</i>	<i>Bus.</i>	<i>Bus.</i>	<i>Bus.</i>	<i>Bus.</i>	<i>Bus.</i>
Spain.....	13.8	15.0	12.8	13.8	22.3	20.6	21.8	21.8	21.5
France.....	13.8	16.5	18.6	22.3	24.9	24.5	29.1	33.6	60.4
England and Wales.....	29.9	28.6	31.2	31.6	32.3	32.7	44.2	45.9	43.8
Scotland.....	39.4	35.8	40.6	39.0	31.8	37.9	44.9	42.0	44.4
Ireland.....	33.2	37.0	37.0	44.2	43.5	44.8	59.8	54.9	58.0
Italy.....	13.2	15.2	15.3	15.8	16.9	15.8	23.9	22.3	26.0
Luxemburg.....	17.9	15.9	22.0	22.3	24.9	27.7	34.1	37.0	38.6
Norway.....	17.7	23.2	23.9	30.8	36.6	33.1	36.2	49.9	41.5
Netherlands.....	23.3	35.1	39.0	50.0	39.6	49.1	47.2	54.9	56.4
Sweden.....	22.8	29.3	31.7	28.1	34.8	33.1	34.6	44.9	37.0
Switzerland.....	32.9	30.9	33.0	37.5	35.3	35.5	61.4	61.4	55.8
Canada.....	15.8	17.1	22.0	21.5	23.7	30.1	29.5	37.3	38.8
United States.....	13.9	12.1	15.5	24.3	23.6	26.4	36.8	30.1	29.9
India.....	15.5	10.4	11.7	.....	.....	.....	.....	.....	.....
Japan.....	22.5	21.7	20.5	27.9	31.2	30.8	.....	35.4	42.3
Algeria.....	8.9	8.9	10.1	11.3	11.9	12.3	25.2	23.1	23.4
Egypt.....	26.8	25.3	25.6	30.5	30.1	29.9	.....	.....	.....
Tunis.....	5.4	4.9	4.6	8.0	3.9	6.0	30.4	8.9	21.8
Averages.....	13.8	13.4	15.6	22.1	23.0	24.2	33.6	31.5	32.8

### THE CROPS OF ENGLAND AND WALES

CROPS	AREA		PRODUCTION		YIELD PER ACRE		
	1917	1916	1917	1916	1917	1916	Average of 10 years, 1907-16
	<i>Acres</i>	<i>Acres</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>
Wheat.....	1,918,000	1,912,000	57,317,000	54,683,000	29.88	28.60	31.49
Barley.....	1,460,000	1,332,000	46,163,000	43,174,000	30.36	31.11	32.44
Oats.....	2,259,000	2,084,000	99,719,000	95,536,000	38.49	39.95	40.03
Beans.....	203,000	229,000	3,490,000	6,899,000	17.16	30.13	29.40
Peas.....	103,000	85,000	2,215,000	2,081,000	21.51	24.40	25.08
			<i>Tons(1)</i>	<i>Tons</i>	<i>Cwt.</i>	<i>Cwt.</i>	<i>Cwt.</i>
Seeds hay.....	1,682,000	1,763,000	2,405,000	2,899,000	28.60	32.89	29.54
Meadow hay.....	4,794,000	4,826,000	5,150,000	5,939,000	21.48	24.61	23.18

(1) 2,440 lbs.

## UNITED STATES FINAL CROP REPORT

The Department of Agriculture makes the following report of the principal crops of the United States for the past two years, compared with average of five years—1911-15.

	1917	1916	Five Years' Average
	Bushels	Bushels	Bushels
W. Wheat.....	418,070,000	480,553,000	542,615,000
S. Wheat.....	232,758,000	155,755,000	263,746,000
Corn.....	3,159,494,000	2,566,927,000	2,754,164,000
Oats.....	1,587,235,000	1,252,837,000	1,230,499,000
Rye.....	60,145,000	48,862,000	41,399,000
Barley.....	203,975,000	182,309,000	197,211,000
Flax Seed.....	8,473,000	14,296,000	18,618,000
Potatoes.....	442,336,000	286,953,000	362,910,000
	Tons	Tons	Tons
Hay.....	94,930,000	110,992,000	86,587,000

## UNITED STATES WINTER WHEAT AND RYE REPORT

Winter wheat sown this fall for next year's harvest aggregated 42,170,000 acres and its condition on December 1st was 79.3 per cent of a normal. The acreage is 4 per cent more than the revised estimated area sown in the fall of 1916.

The area sown to rye is 6,119,000 acres, which is 36.6 per cent more than sown a year ago, and the condition of the crop on

December 1st was 84.1 per cent of a normal.

The condition of winter wheat on December 1st compares with 85.7 per cent of a normal on that date last year, 87.7 in 1915, and 89.3 the ten-year average.

The December 1st rye condition compared with 88.8 per cent of a normal on December 1st last year, 91.5 in 1915, and 92.2 the ten-year average.

## BROOMHALL'S FOREIGN CROP CABLE, DECEMBER 19, 1917

*France.*—Rainy weather hinders seeding. Early sowing was favourable on a reduced acreage. Acreage decrease estimated at 15 per cent. Native movement small and foreign arrivals increasing. Mills operating slowly. Purchases in Australia liberal and Argentine large. American clearances good.

*Italy.*—Wintry weather prevails and seeding has stopped, as snow and ice in the northern sections is against agriculture. Supplies scanty and foreign arrivals inadequate. Labour is scarce and economic conditions unfavourable, import needs large and floating quantity moderate.

*Spain.*—Weather normal and crop prospects favourable. Stocks liberal.

*North Africa.*—Weather favourable. Clearances continue of moderate proportions and grain is being cleared both to United Kingdom and Continent.

*Russia.*—Weather is unfavourable, being very cold, and crops are unfavourable. Agricultural outlook poor as a result of reduced seeding, scarcity of fertilizer and indisposition shown by planters. The government has taken over the entire stocks. Prices are high. Port stocks nothing.

*Canada.*—Receipts keep large and grading high. Arrivals at all United Kingdom

ports show excellent quality. Wheat offers liberal. Flour good and oats light.

*United Kingdom.*—Weather generally unfavourable, being cold and wet. This is against seeding and movement. Native supplies good and foreign stocks large.

*Scandinavian Peninsula.*—Weather very cold with snow in parts and otherwise crops exposed. Supplies are scanty, but arrivals are increasing under Government supervision. Stocks will last until mid-January with strict economy. United States and Canada are shipping moderately to relieve the situation.

*Balkan States.*—Weather generally favourable and crops are favourable. Corn outlook good. Stocks of all grain and shipments overland continue.

*Australia.*—Heavy general rains are unfavourable for harvesting, which has commenced. Recent crop advises unfavourable. Much of the reserves show unfavourable quality.

*India.*—Seeding is finished and weather is favourable for growth and development of the crops. It is expected that a large yield will be confirmed. The Government is assisting with labour. Stocks of old are fair and movement light into export channels.



## THE SUPPLY AND CONSUMPTION OF WHEAT IN BRAZIL

A report of a commission appointed by the Federal Government and including representatives thereof, dated 12th May, 1917, dealing with the requirements of wheat for consumption in Brazil, states that the annual imports of wheat (and flour reduced to wheat) were 23,332,000 bushels on the average for the three years 1912, 1913 and 1914, and that 90 per cent of these imports were from Argentina. The requirements of imported wheat for consumption in normal times are therefore estimated at 412,000 bushels per week. Apart from the stock in the state of Rio Grande do Sul, the entire quantity of imported wheat in Brazil on 12th May 1917 was estimated as equal to two months requirements, and it was expected that Argentina could furnish a further 2,572,000 bushels from the crop of 1916-17, which would be equivalent to nearly another six weeks' consumption. The production of wheat in 1917 in the state of Rio Grande do Sul is estimated as 4,777,000 bushels. The mills at the ports of this state report that they hold sufficient wheat to continue their grinding until 31st December, 1917, by

availing themselves of the home-grown crop as well as of their own stocks of Argentine wheat. These data serve to indicate the difficulties regarding adequate supplies of wheat during the period to elapse before the 1917-18 crop of Argentina becomes available in January, 1918.

On the part of the Federal Government and those of the states in southern Brazil, measures have been adopted with the view of increasing the production, already showing so much advance in Rio Grande do Sul, with the inducements offered by the high prices. Such measures are intended to mitigate the absolute dependence of Brazil upon the crops of Argentina for supplies of wheat, and they include proposals for free distribution of seed and the establishment of experimental farms.

As regards measures for immediate relief of the crisis, it is recommended by the Report to increase the flour extraction from the wheat up to 80 per cent, and to provide for an admixture of 30 per cent of other products in bread making, but fixing of maximum prices is not considered advisable.

## INTERNATIONAL INSTITUTE CROP CABLE

A cablegram received from the International Institute of Agriculture gives the following estimates:

Total production of Wheat in Denmark, Spain, France, Great Britain, Ireland, Italy, Luxemburg, Norway, Holland, Sweden, Switzerland, Canada, United States, India, Japan, Algeria, Egypt and Tunis is 1,864,124,000 bushels or 96.1 per cent of the production of the same countries in 1916, a decrease of 75,000,000, and 85.1 per cent of their average production during the five years, 1911-15, a decrease of 325,000,000.

Production of Rye in Denmark, Spain, France, Ireland, Italy, Luxemburg, Norway, Holland, Sweden, Switzerland, Canada and the United States is 160,306,000 bushels or 96.2 per cent of last year, a decrease of 7,000,000, and 91.7 per cent of the five years' average, a decrease of over 6,000,000.

Production of Barley in the same countries as for rye plus Great Britain, Japan, Algeria, Egypt and Tunis is 610,699,000 bushels or 100.1 per cent of last year and 95.9 per cent of the five years' average, a decrease of 27,000,000.

Production of Oats in the same countries as for barley minus Japan and Egypt is 2,570,939,000 bushels or 112.1 per cent of last year, an increase of 275,000,000, and 113.4 per cent of the five years' average, an increase of 300,000,000.

Production of Corn in Spain, Italy,

Switzerland, Canada, United States and Japan is 3,283,818,000 bushels or 121.4 per cent of last year, an increase of 578,000,000, and 113 per cent of the five years' average, an increase of 377,000,000.

Production of Rice in Spain, Italy, United States, Japan and Egypt 10,659,320 tons or 80.3 per cent of last year and 83.7 per cent of the five years' average.

Production of Flaxseed in Italy, Holland, Canada, United States and India is 36,664,000 bushels or 86.6 per cent of last year and 67.6 per cent of the five years' average.

Production of Potatoes in England and Wales, Ireland, Italy, Luxemburg, Norway, Holland, Sweden, Switzerland, Canada, United States and Japan is 1,118,669,000 bushels or 136.4 per cent of last year, an increase of 298,000,000, and 114.8 per cent of the five years' average, an increase of 143,000,000.

Production of Sugarbeets in Holland, Sweden, Switzerland, Canada and the United States is 8,992,000 tons or 92.7 per cent of last year and 103.1 per cent of the five years' average.

Production of Tobacco in Switzerland, United States and Japan is 1,289,000,000 pounds, 105.5 per cent of last year and 118.7 per cent of the five years' average.

Production of Wine in Spain, Luxemburg and Algeria is 643,384,000 imperial gallons or 90.8 per cent of last year and 130.5 per cent of the five years' average.



## DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

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Private Secretary.....T. J. Lynton  
Deputy Minister.....Geo. F. O'Halloran, B.A., B.C.L.  
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Chief Translator.....C. E. Mortureux, B.S.A.

**The Dominion Experimental Farms Branch..**Director, J. H. Grisdale, B.Agr.

Of the Central Experimental Farm and twenty Branch Farms and Stations distributed over Canada, conducts research and experiments in animal, field, orchard, garden and greenhouse husbandry, distributes superior seeds, analyzes and tests fertilizers and feeding stuffs, studies diseases of plants and administers ordinances for their control, and demonstrates what are of value.

**The Dairy and Cold Storage Branch.....**Commissioner, J. A. Ruddick.

Encourages and assists in the development of the dairying industry and the improvement of the storage, transportation, sale and trade in agricultural products; administers the Dairy Industry Act (1914), the Cold Storage Act (1907), and the Cold Storage Warehouse Act (1914).

**The Seed Branch.....**Commissioner, George H. Clark, B.S.A.

Encourages the production and use of superior seed, the production of farm and garden crops, tests seed for farmers and seed merchants and administers the Seed Control Act.

**The Live Stock Branch.....**Commissioner, H. S. Arkell, M.A., B.S.A.

Encourages and assists the development of the live stock industry.

**The Health of Animals Branch....**Veterinary Director General, Frederick Torrance, B.A., D.V.S.

Administers the Animals Contagious Diseases Act and the Meat and Canned Food Act. Protects Canadian live stock from contagious diseases.

**Entomological Branch... Dominion Entomologist, C. Gordon Hewitt, D.Sc.**

Conducts investigations on insects in relation to agriculture, encourages the use of methods of prevention and control and administers the Insects and Pests Section of the Destructive Insect and Pest Act.

**The Fruit Branch.....**Commissioner, Donald Johnson.

Encourages the development of the fruit industry along commercial lines. Also administers Part IX of the Inspection and Sale Act relating to fruit and fruit packages.

**International Institute of Agriculture..**Commissioner, T. K. Doherty, LL.B.

Supplies Institute at Rome statistics and official information respecting agriculture in Canada and prepares for distribution in Canada corresponding information from countries adhering to the International Institute of Agriculture.

**The Publications Branch.....**Editor and Chief, J. B. Spencer, B.S.A.

Distributes the publications of the Department and edits The Agricultural Gazette of Canada.

**The Exhibition Branch.....**Commissioner, Col. Wm. Hutchison.

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